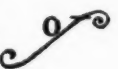


THE AMERICAN School Board Journal

A PERIODICAL  SCHOOL ADMINISTRATION

Devoted to the Interests of School Boards, Superintendents,
School-Business Officials, and School Architects



VOLUME 81
JULY—DECEMBER, 1930

THE BRUCE PUBLISHING COMPANY
NEW YORK • MILWAUKEE • CHICAGO

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THE AMERICAN School Board Journal

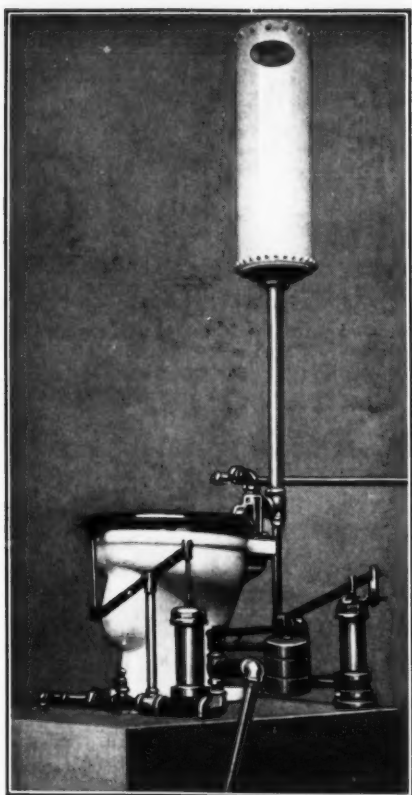
A PERIODICAL OF SCHOOL ADMINISTRATION



JULY 1930

THE BRUCE PUBLISHING COMPANY
CHICAGO MILWAUKEE, WIS. NEW YORK

Annual Equipment and Supplies Number



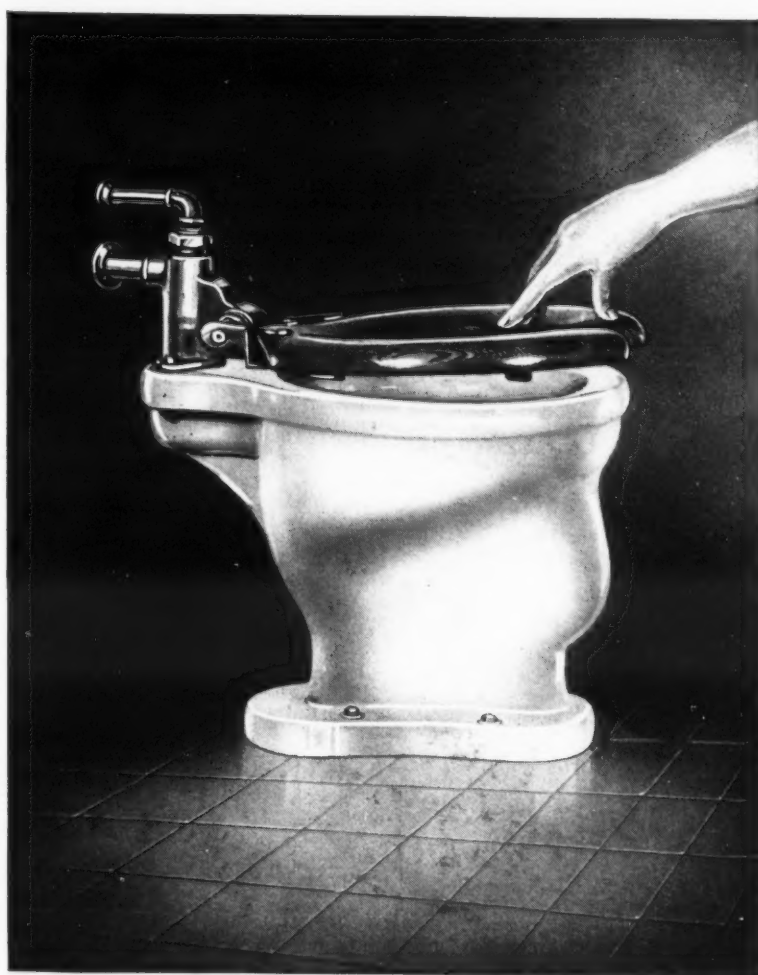
This endurance test, which started July 16th, 1929, is your guarantee of **VOGEL** performance

The **VOGEL** Number Ten Seat-Action
Closet has now flushed 147,000 times —
and not even a washer has been renewed

Showing apparatus
for Testing Vogel
Number Ten

THE mechanical device used in testing this **VOGEL** Number Ten Seat-Action Closet is so designed that it operates all night, as well as all day. The seat lowers, the tank fills, the seat is released, and the closet flushes. This has gone on since July 16, 1929, twenty-four hours a day. It has now flushed more than 147,000 times, and there is still no sign of any repairs being necessary. This is equivalent to more than 40 years' use.

Based on this performance, we feel justified in saying that **VOGEL** Number Ten and Number Ten-A Seat-Action Closets are the best for schools and institutions of all kinds. They are made by a concern specializing in the manufacture of seat-action closets, for more than 23 years.



Vogel Number Ten-A Seat-
Action Closet, Tank Concealed
It operates easily

Write for folders giving complete information on **VOGEL** Number Ten and Number Ten-A Seat-Action Closets, or ask your plumber about them. A bulletin is available. It describes this closet completely.

JOSEPH A. VOGEL COMPANY
Wilmington, Delaware St. Louis, Mo.

VOGEL *Products*

BOARD OF SCHOOL INSPECTORS
OF THE CITY OF PEORIA

April 20, 1929

PEORIA, ILLINOIS

G.T. MOWAT, Secretary
BOARD OF SCHOOL INSPECTORS
PEORIA, ILL. ▲▲▲▲▲

M. H. WHITLOCK, M. D., PRESIDENT
W. B. REED, TREASURER
H. B. MORGAN, ATTORNEY
G. T. MOWAT, SECRETARY
800 N. MONROE ST.

Natural Slate Blackboard Company,
Pen Argyl, Pa.

Gentlemen:

Your undated mimeograph letter regard-
ing Blackboards.

It may be of interest to you to know
that two years ago we abandoned two old Elementary
buildings and erected a new one.

From these old buildings, we salvaged
enough slate blackboard to take care of our demands
for a number of years.

It has been our practice to strip old
buildings as they are abandoned, of the slate and
place it in new locations, finding it as serviceable
as the new material.

We have 100 per cent slate blackboards.

Yours very truly,
G. T. Mowat
Secretary

GTM-DLG

HERE'S SPECIFIC PROOF OF ▲▲▲▲▲
NATURAL SLATE BLACKBOARDS
"OUTLASTING THE BUILDING"

Even in these days of research and science, nothing has yet been able to satisfactorily take the place of NATURAL SLATE BLACKBOARDS in the Schoolroom.

No material exists that is so easy to write on, so simple to clean, so smooth and everlasting as NATURAL SLATE BLACKBOARDS . . .

Man has not been able to better this product of Nature.

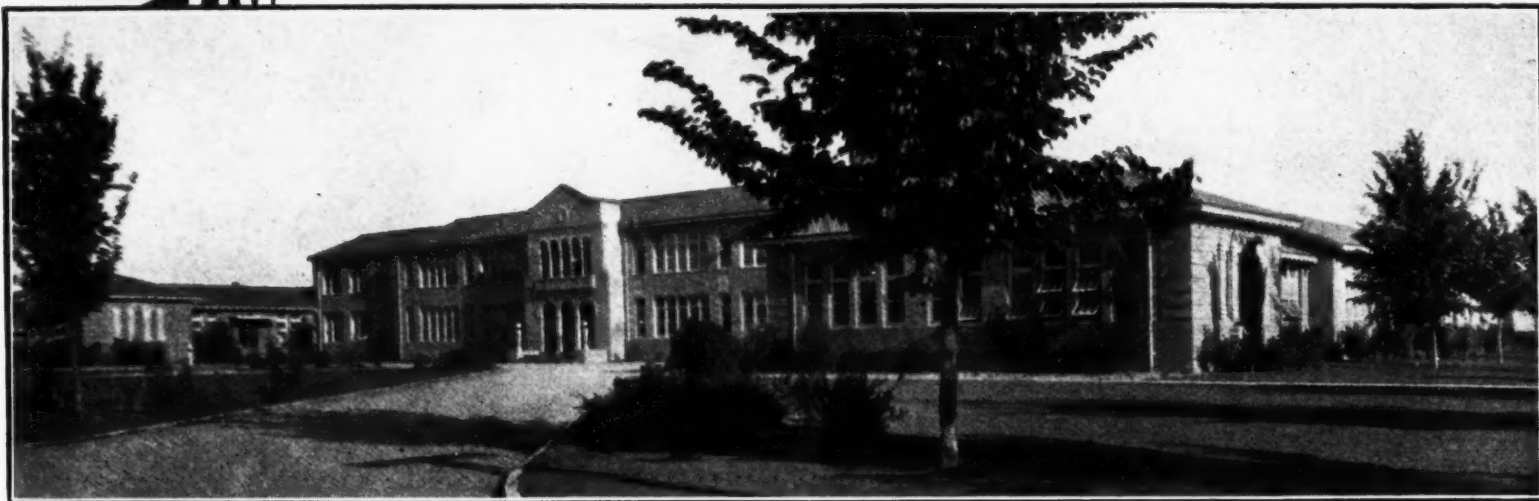
The accompanying letter tells the story of NATURAL SLATE BLACKBOARDS' everlasting qualities completely, concisely and convincingly. They are the words of recommendation of a School Inspector who has "intimately known" Slate for many years.

NATURAL SLATE BLACKBOARD COMPANY, 740 Robinson Ave., Pen Argyl, Pa.

BRANCH OFFICES IN ALL PRINCIPAL CITIES

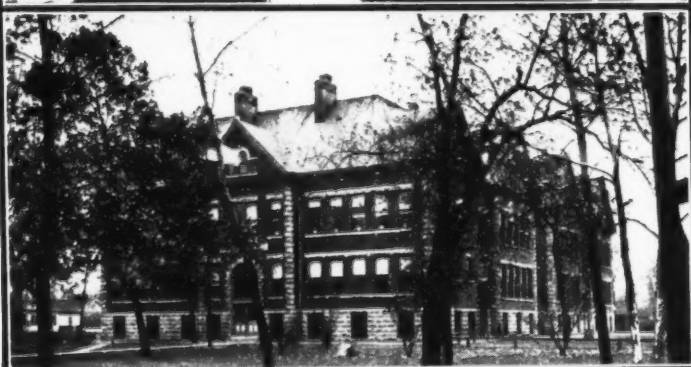
NATURAL SLATE BLACKBOARDS
NATURAL SLATE BLACKBOARDS

Natural Slate Blackboards Outlast the Building



TURLOCK HIGH SCHOOL, TURLOCK, CALIF.

Anywhere — Everywhere School Maintenance Problems are met with the Midland System



1. High School, Clayton, Mo.
2. Jefferson High,
E. St. Louis, Mo.
3. High School,
Webster Groves, Mo.

EVERY necessary operation for the economical upkeep of school property has been studied by Midland Maintenance Engineers. Special cleansers have been compounded to best serve the needs of the school building, special tools have been designed to speed up and lighten labor and achieve better results.

Among the outstanding, successful products developed by the Midland Chemical Laboratories, are TILEOLEUM, for tile, marble and terrazzo installations. WAXOLEUM, an easy spraying liquid wax which is cleanser and polisher combined with a non-greasy, quick drying solvent. Midland LOHSEAL for the preservation of wood floors, especially effective for the proper maintenance of gymnasium floors. These and many more are offered only after much experimentation and testing by men well versed in the practical needs of the school custodian. An inquiry will bring you complete data and all information regarding the Midland School House-keeping System without cost or obligation.

Write to

Midland Chemical Laboratories, Inc.
Dubuque, Iowa

KEWANEE

Type "C" *Electric-Weld* STEEL BOILER

A real Kewanee—designed particularly for those buildings where limitations of space or money demand a compact boiler.

Solidly welded into one unit by the well proved electric metallic-arc-puddling process (*which has been used on the welded details of all Kewanee Products for many years*); with Double Weld for vital seams—the Kewanee Type "C" takes all the "guess" out of welded boilers.

It occupies conveniently shaped space, and requires no excess "head room"—a compact boiler at an established price of interest to builders. And it has proved, by every possible test, its ability to make steam efficiently.

1. The furnace has extra width and height, providing perfect conditions for complete combustion.

2. Long travel of flue gases—back and forth—gives the water a chance to absorb all useable heat.

3. The water content is large, so the heat is absorbed without undue disturbance. The rapid circulation sweeps the steam bubbles through the free water ways provided by the improved Kewanee design. The water line remains steady.

4. Kewanee design keeps the top flues always under water—yet the water line is 3 to 4 inches lower. Ample steam space and large unbroken disengaging areas insure a continuous flow of dry steam into the mains.

5. The Corrugated Crown Sheet, built Right-Side-Up, provides more heating surface where it is most effective. It also adds strength.

**Compact in Design
Efficient in Operation
Economical in Price**

The Kewanee Line of Steel Boilers is complete—for every size and type of building. The staunch steel-riveted Kewanee, which you have known for 40 years: Type "C", compact in design: And Type "R", for homes and smaller buildings. All are built for burning Coal, Oil or Gas. Ask for Catalogs.

Tapped for Excelso Water Heater



KEWANEE BOILER CORPORATION

division of American Radiator & Standard
Sanitary Corporation

KEWANEE, ILLINOIS

MEMBER OF STEEL HEATING BOILER INSTITUTE

Branches in Principal Cities

Von Duprin

Self-Releasing Fire and Panic Exit Latches

The Joy of Being Sure

The installation of the genuine Type "B" Von Duprin devices is a source of real satisfaction.

It brings the knowledge that, in case of emergency, the occupants of the school have been provided with the best known protection against panic disasters.

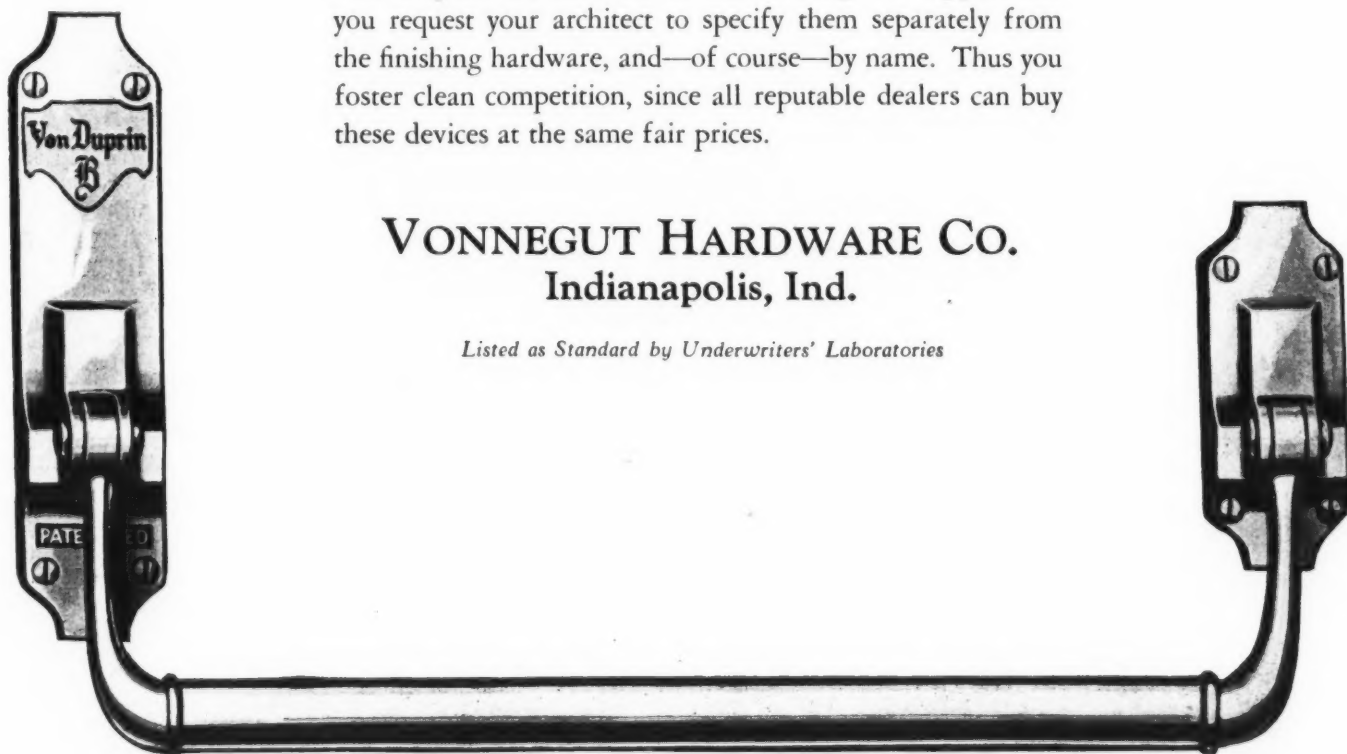
If an emergency threatens, there is the joy of being sure—of knowing that no better protection could have been provided, regardless of how much money had been spent.

To be certain, to know that the genuine Type "B" Von Duprins are installed on the building, we suggest that you request your architect to specify them separately from the finishing hardware, and—of course—by name. Thus you foster clean competition, since all reputable dealers can buy these devices at the same fair prices.

*Sweets
Pages C3130-C3135*

VONNEGUT HARDWARE CO.
Indianapolis, Ind.

Listed as Standard by Underwriters' Laboratories



Belongs In Every School Building, Everywhere

THE many cited applications of Johnson Heat & Humidity Control in school buildings, the importance and impressiveness of the great number of school buildings Johnson equipped, should be convincing enough to interest all school building officials in Johnson Control and its value. The correct hygienic condition insured by Johnson accuracy in the automatic control of proper temperature for each room is vital. The fuel economy of 25 to 40 per cent annually is a huge saving item. The reliability of the Johnson System is repeatedly evidenced and vouched for in school buildings everywhere.

East High School, Youngstown, Ohio (pictured here, Paul Boucherle, Architect), has been in operation three years. It is equipped with the Johnson System Of Control. Eighty-four room thermostats are installed; also Johnson Switch Control of fresh air and vent dampers, and Johnson thermostat control of the fan system for the auditorium and gymnasium. The classrooms are ventilated by unit ventilation, and the auditorium-gymnasium section by blower fans—both systems Johnson Controlled as referred to. The Switch Control is so arranged that the auditorium, gymnasium and certain sections of the classrooms can be used independently: heat for the entire building not being necessary when only part of the building is used: fuel consumption maintained on a *per room* basis, the hours each room is used. Obviously, the advantages are manifold, and in truth a necessity today.

Write now for the Johnson book of details: interestingly describing Johnson Heat & Humidity Control, methods of installation, operation and service.

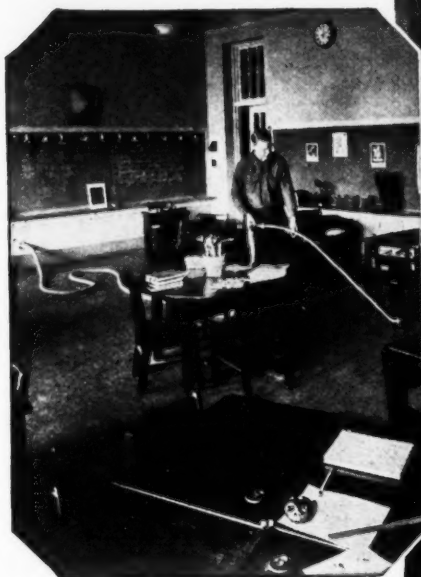
JOHNSON SERVICE COMPANY

ESTABLISHED 1885
149 East Michigan Street
MILWAUKEE, WISCONSIN
BRANCHES IN ALL PRINCIPAL CITIES



JOHNSON HEAT AND HUMIDITY CONTROL

EAST HIGH SCHOOL, YOUNGSTOWN, OHIO
Equipped With Johnson Heat and Humidity Control



*Cleaning Linoleum
in Class Room.*



Cleaning Chalk Trays.



Cleaning Erasers.

When you remodel . . . or build a new school



REMEMBER that of all the modern advantages that machinery can add to school operation there is none that benefits more people and saves as much money as the Spencer Central Cleaning System.

It cleans continuously . . . even during class time . . . the foot prints in the halls are erased with a vacuum pull that sucks

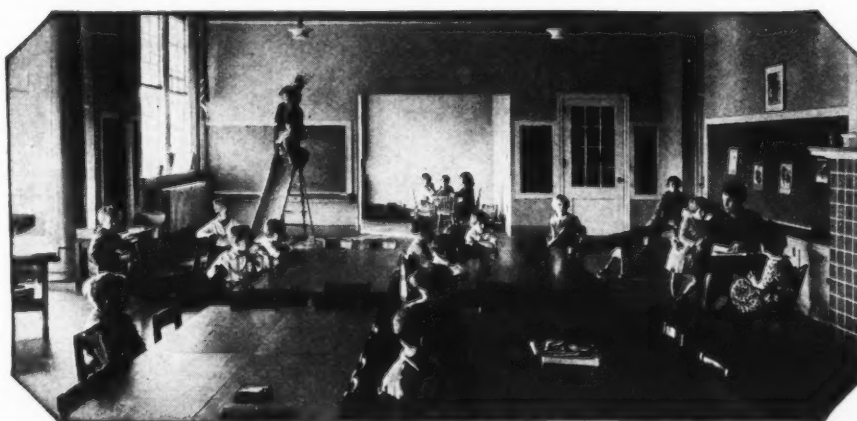
all dirt and dust to a container in the basement.

The degree of cleanliness is greater, the health of teachers and pupils is conserved and the net increase in expense is more than overcome by the saving in time and the saving of paint, books, floor coverings and decorations — because the Spencer Cleaned School is *perpetually clean*.

THE SPENCER TURBINE CO.

HARTFORD, CONNECTICUT  **CENTRAL
CLEANING
SYSTEMS**  REPRESENTATIVES IN 50 CITIES

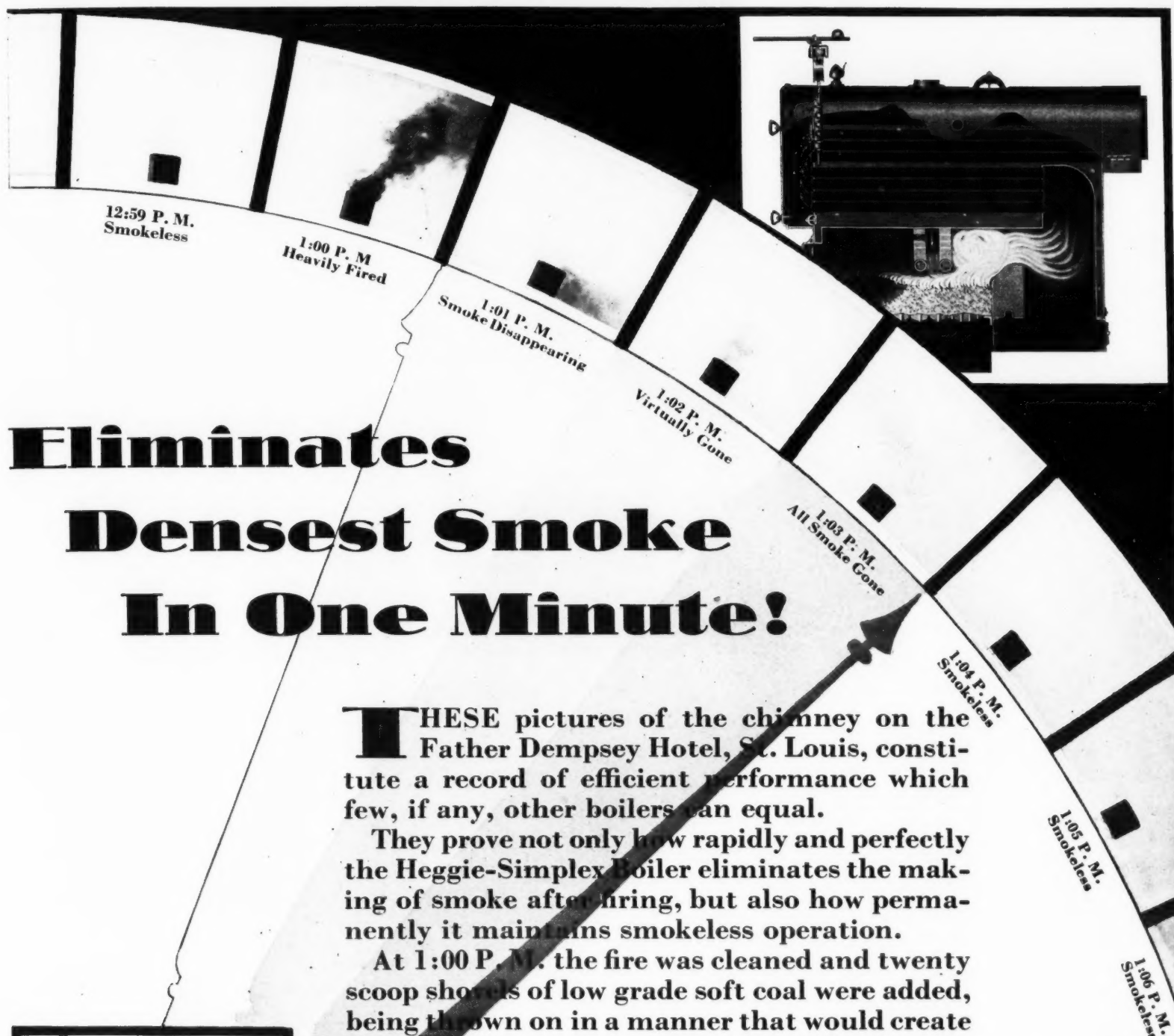
Used by 1500 modern schools — endorsed by leading architects and educators.



A Modern Kindergarten—Spencer Cleaned.



Ask for the new booklet "Modern Cleaning Methods for Modern Schools"



Eliminates Densest Smoke In One Minute!

THESE pictures of the chimney on the Father Dempsey Hotel, St. Louis, constitute a record of efficient performance which few, if any, other boilers can equal.

They prove not only how rapidly and perfectly the Heggie-Simplex Boiler eliminates the making of smoke after firing, but also how permanently it maintains smokeless operation.

At 1:00 P. M. the fire was cleaned and twenty scoop shovels of low grade soft coal were added, being thrown on in a manner that would create the maximum of smoke. Immediately the smokeless device of the Heggie-Simplex began to function.

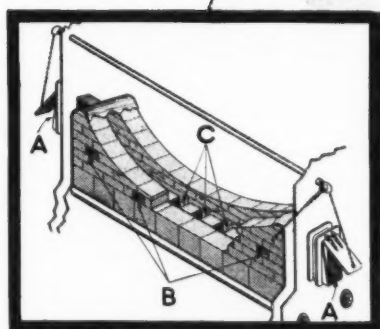
Within a minute all "No. 3" smoke* was gone! A half minute later there remained only a trace of "No. 1." At the end of 2 minutes only a slight haze issued from the chimney. At the end of 3 minutes absolutely all smoke was gone and did not appear again during the remainder of the firing period.

* "No. 3" smoke is that grade of smoke ordinarily termed offensive in city ordinances.

For complete facts write Heggie-Simplex Boiler Company, Joliet, Ill.; representatives in principal cities—telephone and address listed under "Heggie-Simplex Boilers."

HEGGIE-SIMPLEX

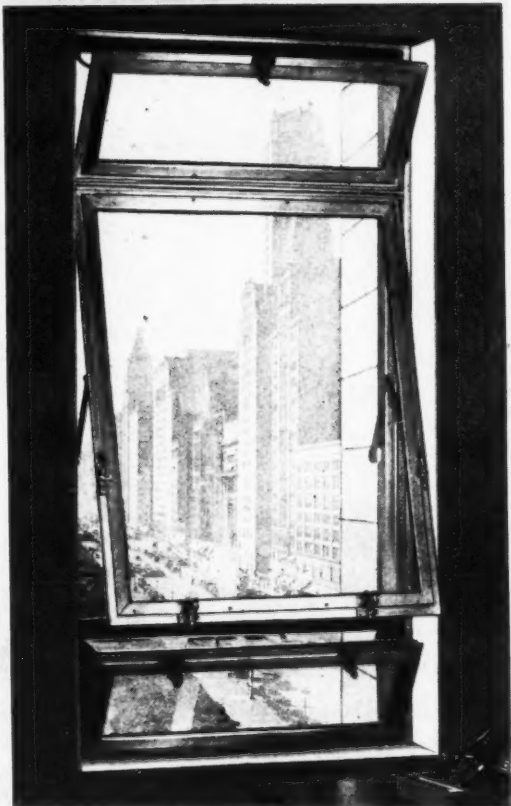
STEEL HEATING BOILERS



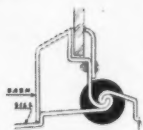
Air is drawn in through intake doors (A). Volatiles arising from the fresh fuel are admitted through ports (B). This inflammable mixture, heated by the hot refractories of the chamber, is ready for instant combustion when it passes through the jets (C) down onto the fire.

The Heggie-Simplex burns any fuel smokelessly because it assures plenty of air—heated air—over the fire. A smoke eliminating device with intake doors on both sides of the boiler admits the additional oxygen essential to smokeless combustion which cannot be drawn through the fuel bed alone. Built of refractories, this chamber heats the air before passing it down onto the fire, where it is thoroughly mixed with the gases.

WINDOWS



IN-SWINGING TYPE
SEALAIR WINDOW



Continuous
Water-proof hinge.
Patents applied for.

VENTILATION

In-swinging Sashes permit controlled ventilation, without unpleasant drafts.

CLEANING

May be washed entirely from the inside.



INSULATION

When closed, insulation between sash and frame protects against weather.

SAFETY

Difficult for anyone to fall or leap out.

NOISELESS

Sealair Windows will not rattle — operate easily, silently and independently.

Application of
shade. Translucent
glass in transom.

Furnished in Bronze, Aluminum Alloy or Steel. All joints strongly welded.

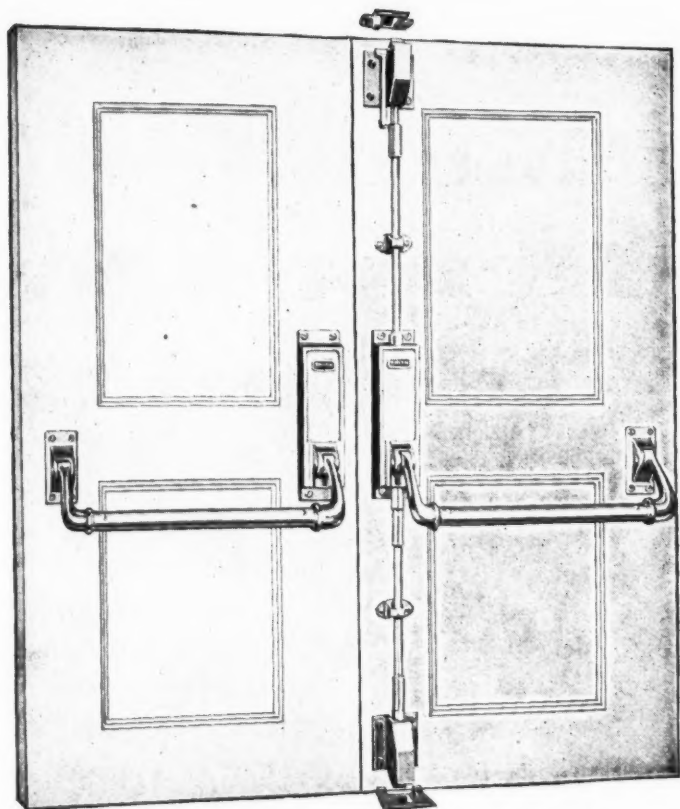
Kawneer
SEALAIR
WINDOWS

THE KAWNEER COMPANY, NILES, MICHIGAN
KAWNEER MFG. CO., BERKELEY, CALIF. (SUBSIDIARY)
Manufacturers of
RUSTLESS METAL STORE FRONTS, WINDOWS AND DOORS

SMITH'S IMPROVED PANIC EXIT LOCKS

NO. 80 LINE

Gravity Panic Exit Bolts



*Inside View
Has Outside Trim.*

*Inside View
No Outside Trim.*

Bolts are operated by a slight pressure on the Cross Bar.

Bolts are not dependent on springs for opening or closing operation.

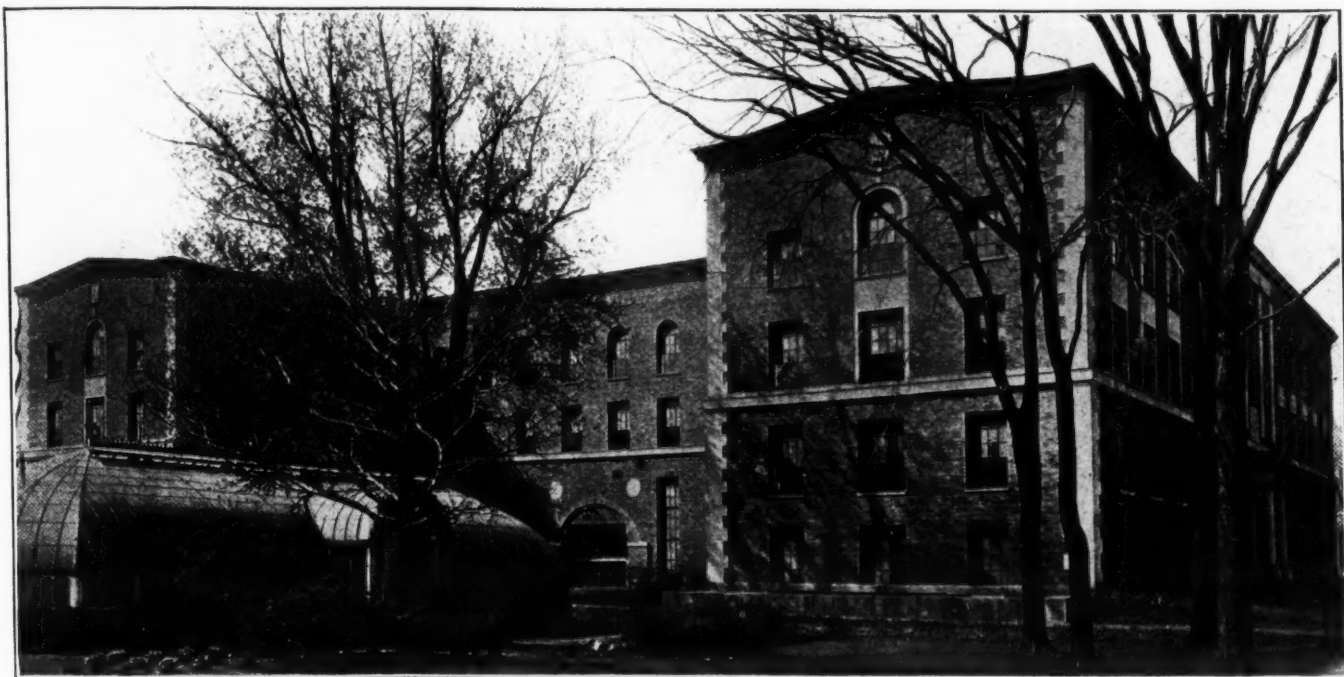
Simple but sturdy in construction and easily installed.

Will operate perfectly in connection with standard makes of door closers.

Catalogue No. 30 with Supplement "A" sent on request.

Manufactured by
THE STEFFENS-AMBERG CO.
260-270 Morris Ave.
NEWARK, N. J.

Were Your Schools Underlighted In 1929?



University of Illinois
(Material Testing Laboratory)

Upper Exterior Sash Glazed With
Lensrib Diffusing Glass

Prof. James M. White
Arch. and Eng.

Startling facts revealing the cause of under daylight illumination in schools and colleges astonish even the illuminating engineer of experience.

The United States Weather Bureau reports only 59 per cent actual sunshine during 1929 in leading cities east and west, when cloudy weather and low sky intensities have reduced the available daylight, leaving classrooms, laboratories, etc., underlighted, 5-foot candles and less too frequently to be ignored. (U. S. Public Health Bulletin No. 159, Washington, D. C.)

Many architects already know the frequency and seriousness of this condition and have used successfully Pressed Lensrib Diffusing Glass in the exterior upper sash. From experience where this useful glass is in operation, it is seldom found necessary to use any artificial illumination even on dark days.

The extraordinary volume of daylight illumination (shadowless light) is conceded superior in quality and volume to any other glass and may be used in all classrooms, laboratories and science buildings, even those more modest in design.

No architectural features of this unusually good looking structure have been sacrificed in any way, the

Hours of Sunshine in 1929

	Actual	Possible	Percentage
Columbus, Ohio	2194.6	4454.3	49%
Pittsburgh, Pa.	2313.2	4455.7	52%
Toledo, Ohio	2344.0	4457.4	52%
Buffalo, N. Y.	2456.0	4460.0	55%
New York City, N. Y.	2815.0	4540.3	62%
Seattle, Wash.	2213.7	4470.8	50%
Los Angeles, Calif.	3447.1	4445.8	78%
San Francisco, Calif.	3081.0	4451.5	69%
Memphis, Tenn.	2645.5	4446.7	59%
Cincinnati, Ohio	2566.4	4582.8	56%
St. Louis, Mo.	2341.0	4453.0	53%
Kansas City, Mo.	3109.5	4453.0	70%
Minneapolis, Minn.	2673.6	4609.6	58%
Denver, Colorado.	2805.1	4454.3	63%
New Orleans, La.	2436.6	4441.1	55%
Philadelphia, Pa.	2583.0	4454.0	58%
Washington, D. C.	2620.0	4453.0	59%
Boston, Mass.	2713.0	4598.3	59%
Louisville, Ky.	2872.1	4451.5	64%
Duluth, Minn.	2634.3	4478.9	59%
Lincoln, Nebr.	2618.0	4455.0	58%
Jacksonville, Fla.	2706.0	4441.0	61%
Houston, Texas	2619.4	4441.1	59%

Pressed Lensrib Diffusing Glass in the exterior upper sash, having almost the identical appearance of window shades, and at a short distance there is no difference in appearance. No shades and no glare.

Among the University and College laboratory buildings completed during the year 1929, this huge science structure (material testing laboratory), the last word in design and equipment, with

200,000 square feet floor area, costing two million dollars equipped, considered by many the finest of its type, stimulates the imagination, when its operation and contribution to original research investigation is considered.

Visiting architects after inspection have returned home to design and specify the use of Pressed Lensrib Glass in all classrooms, where no shades are needed under average conditions.

HOW TO SPECIFY—All skylights, side walls, ceilings, and other openings, are to be glazed with Pressed Lensrib Wire Glass as shown on plans and specifications, made by the MANUFACTURERS GLASS CO., First National Bank Building, Chicago, Ill. Lenses glazed on the exterior.

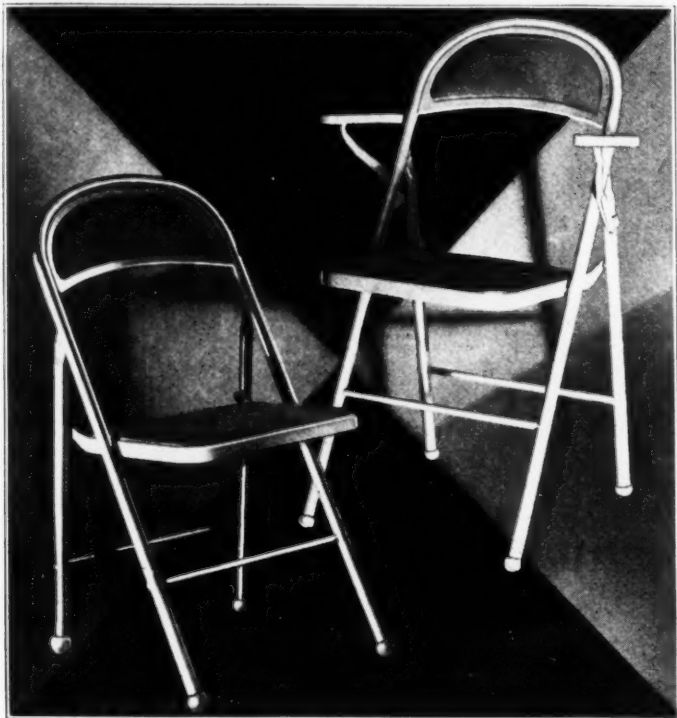
CHICAGO
1702 First National Bank Bldg.
Central 0940

MANUFACTURERS GLASS CO.
Stocked by leading jobbers everywhere.

Factory, Sergeant, Pa.

NEW YORK CITY
551 Fifth Ave.
Vanderbilt 2123

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HERE ARE CHAIRS OF COMFORT AND DURABILITY

FOLDING Chairs of steel for durability—upholstered for comfort and beauty—created by Lyon for these features, plus economy.

These attractive folding chairs, with or without arms, are as rigid as a permanent chair—open quickly and quietly, and fold completely.

The modern upholstery in many designs is washable, and may be obtained in a color or shade to harmonize in any setting. Here are seven leading points in Lyon Steel Folding Chairs:

- Strength—tubular steel—cross braces
- Comfort—right posture angles—generous upholstery
- Safety—broad base and rubber feet
- Compactness—folds flat to 1 1/4-inch space
- Ease of operation—only three moving parts
- Removable upholstery—easily cleaned
- Pinch-proof hinges—no mashed fingers or torn clothing

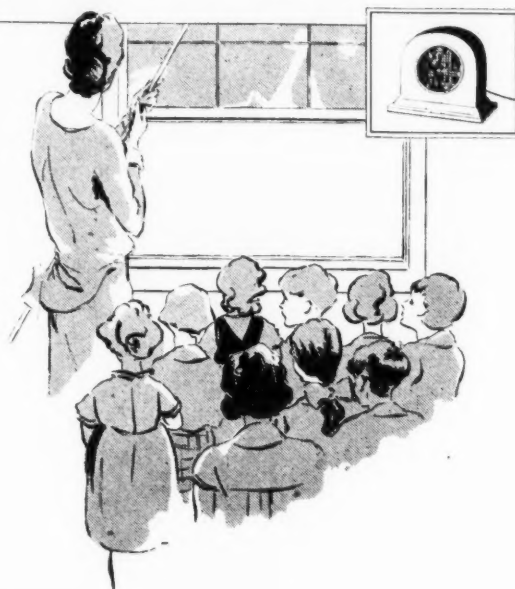
A beautiful, fully illustrated catalog will be sent free on request.

LYON

LYON METAL PRODUCTS, INCORPORATED
Converters of Sheet Steel into Practical Conveniences
AURORA, ILLINOIS
Branches, Jobbers and Dealers in All Principal Cities

STORAGE AND DISPLAY EQUIPMENT IN STEEL
STORE FIXTURES : COUNTERS AND SHOW CASES
SHELVING : LOCKERS AND CABINETS
FOLDING TABLES
AND CHAIRS

The Principal's voice says, "Windows Up" through... the Cone on the Classroom wall



EXERCISE hour has arrived. And in every room at once, sounds the principal's voice. "Windows up," he says to every one, students and teachers alike. That authoritative command cannot be disregarded. Up go the windows and in sweeps the pure fresh air.

That is but one illustration of the value of Powerizer Sound Systems in the school. They are used for making general announcements, for transmitting messages to any desired room, for directing fire drills. Pupils find new interest in studies when the cone on the classroom wall brings them the music of great masters, the speeches of famous men of the day, history-making events as they happen.

Powerizer Sound Systems are complete, balanced units for pick up, amplification and distribution of sound, either from radio, records, voice or instrument. They are installed and serviced by authorized electricians everywhere. Write for complete information as to their application in your school. Powerizer Sound Systems are now successfully used in:



Theatres	Skating Rinks	Apartment Houses
Hotels	Amusement Parks	Hospitals
Restaurants	Fair Grounds	Railway Terminals
Dance Halls	Steam Ships	Schools
Stadiums	Excursion Boats	Civic Centers

RADIO RECEPTOR COMPANY, INC.

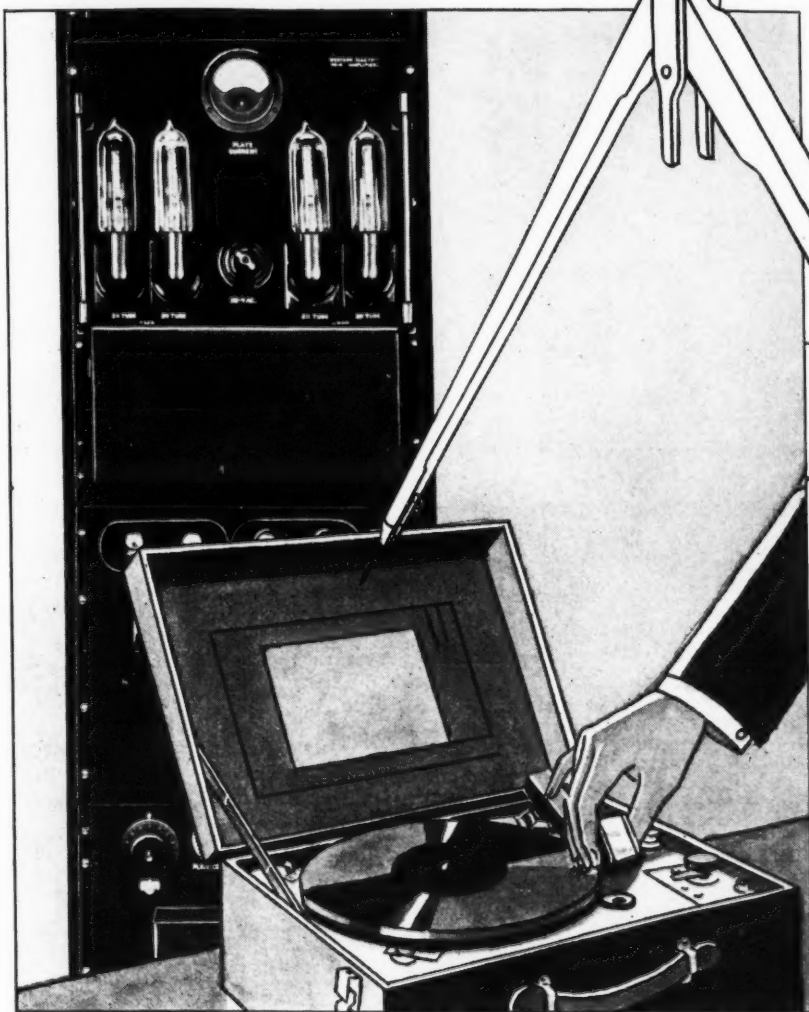
110B Seventh Ave., New York City

*Licensed by Radio Corporation of America
and Associated Companies*

POWERIZER SOUND SYSTEMS

ASB-7-30

WIDEN THE HEARING CIRCLE

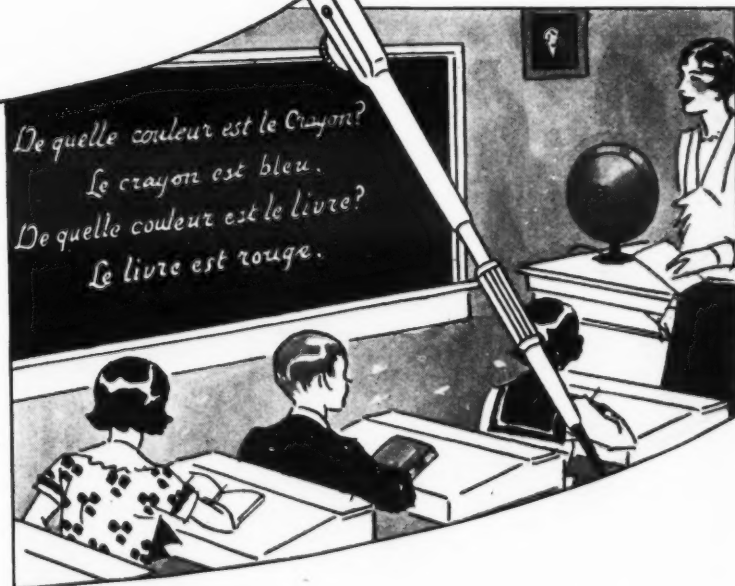


TEACH LANGUAGES THIS VIVID WAY

Bring your modern-language students the voices of cultivated speakers who talk in their native tongue. Give vivid and valuable lessons in accepted pronunciation. Do it with the same equipment that serves music courses — the Western Electric Music Reproduction System.

This equipment plays any standard laterally-cut phonograph record, amplifying the speech or music and distributing it to the rooms desired. Voices are clear and natural—music rich and full-toned.

The high quality of this reproduction is what



you would expect of equipment made by Western Electric, pioneers in sound transmission. Learn how this system is serving schools. Send the coupon to the distributors, Graybar Electric Company, who have branches in 76 principal cities.

GRAYBAR ELECTRIC CO., ASBJ-1
GRAYBAR BUILDING, NEW YORK, N. Y.

Gentlemen: Please send us illustrated booklet on the Music Reproduction System.

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Distributed by GRAYBAR Electric Company

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814 Tower Court, Chicago

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Twenty Years Practical Experience
Registered in Indiana, Illinois, Tennessee

MARTIN J. GEISE, Architect

I make a Specialty of Designing School Buildings in
Illinois, Iowa, and Missouri. Over 20 Years Experience.
QUINCY, ILL. KEOKUK, IOWA

8th and Main Sts. AND State Central Saving Bank
Building, 6th and Main

Wm. G. Herbst, A. I. A. E. O. Kuenzli, A. I. A.

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ARCHITECTS

Educational and Public Buildings

653 Franklin Place at Prospect Milwaukee, Wis.

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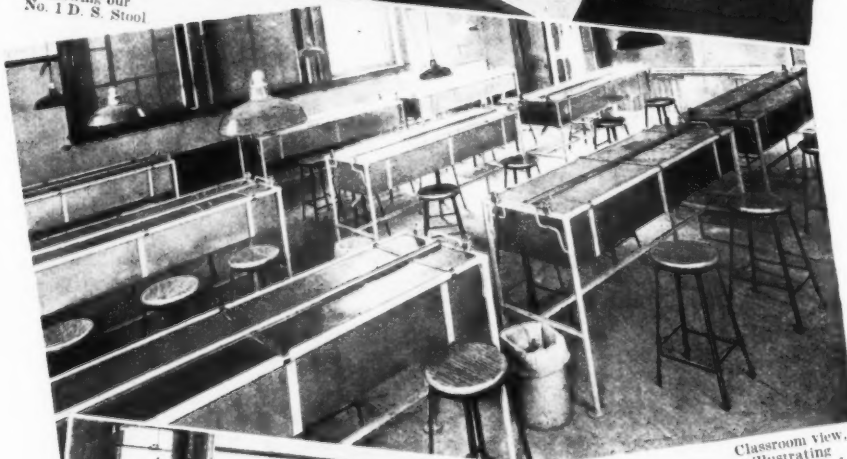
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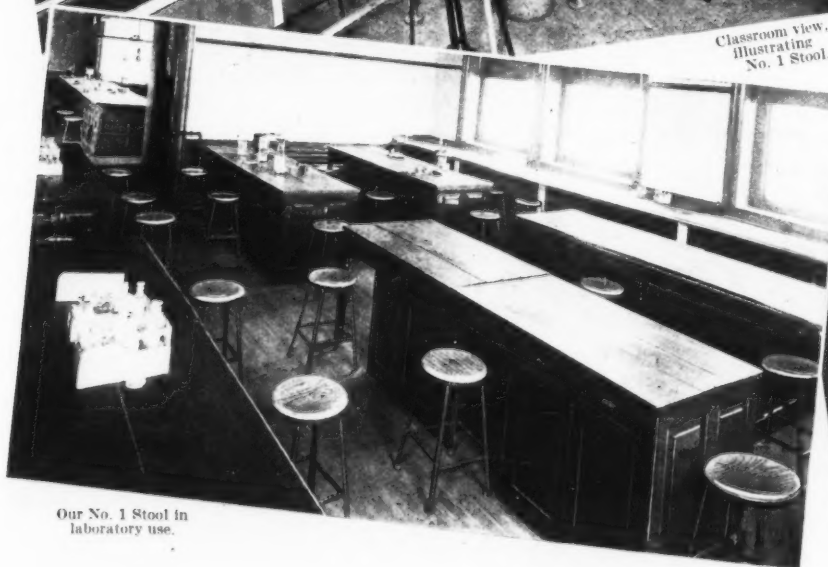
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Classroom view,
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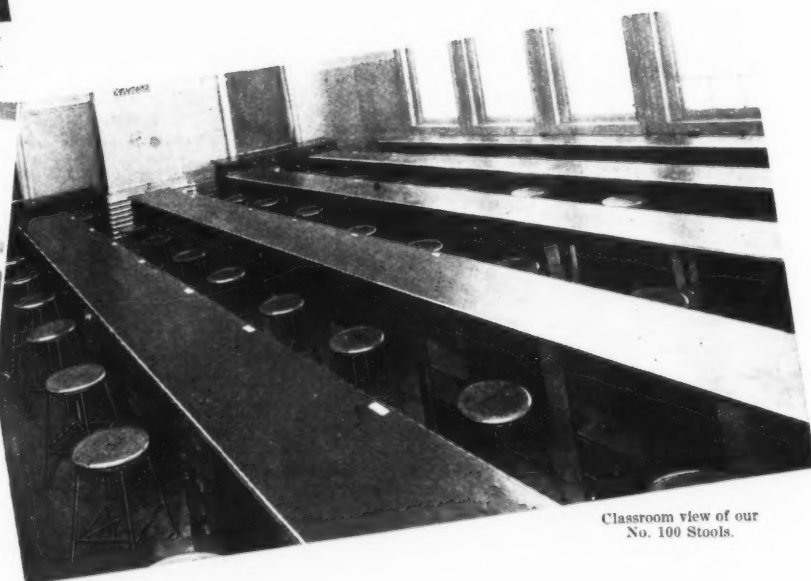
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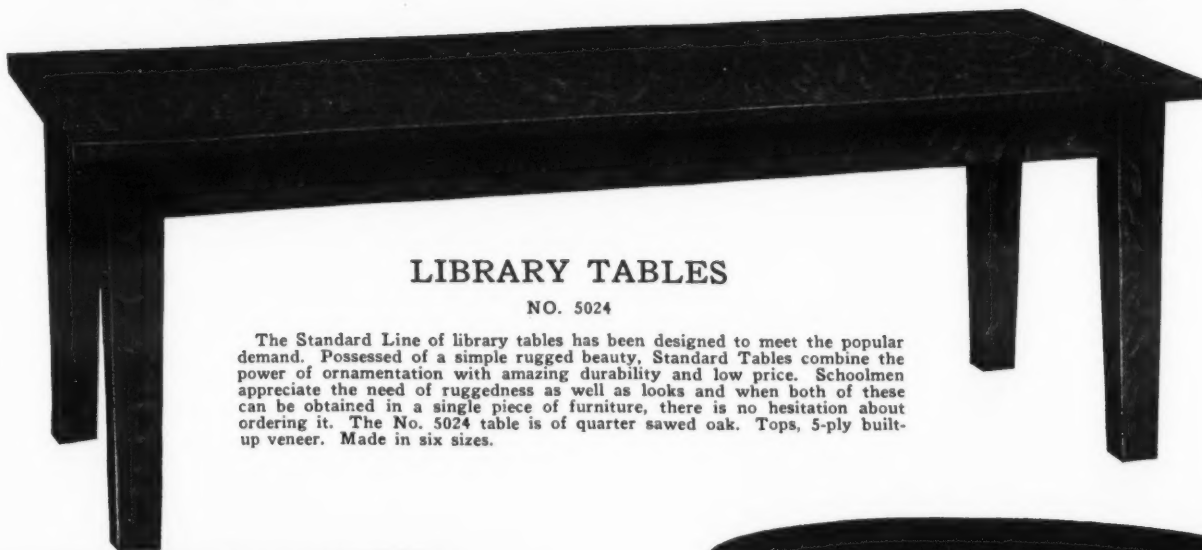
NO. 2561

Plain oak with quarter sawed back. Corner block on all four corners, a feature of all Standard chairs. Carried in stock, same colors as No. 5020. Back rail bent with seat framed in.



NO. 5018

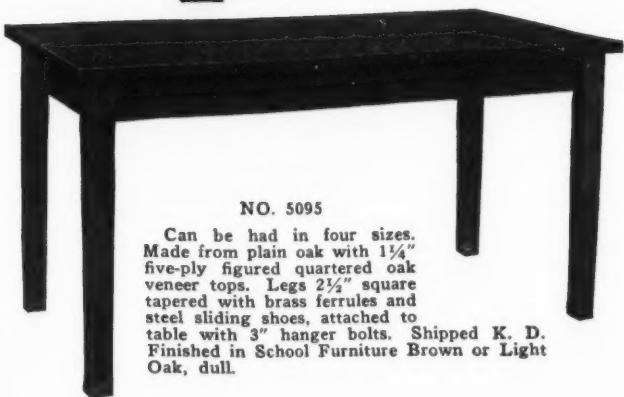
Material quarter sawed oak. Height of seat front, 18", back 17 1/4 in. Top posts rounded off with back slat. Carried in stock, same colors as others. Also made in Junior Size.



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NO. 5024

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NO. 5095

Can be had in four sizes. Made from plain oak with 1 1/4" five-ply figured quartered oak veneer tops. Legs 2 1/2" square tapered with brass ferrules and steel sliding shoes, attached to table with 3" hanger bolts. Shipped K. D. Finished in School Furniture Brown or Light Oak, dull.



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Round Library Table. Same grade and quality as No. 5024 table. Built along same general specifications. Made in four sizes.



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For the pupils in your care
Are they provided with seating that actually helps them sit erect—that encourages correct posture. Remember the hours your pupils spend sitting at their desks. Let those hours work for their physical well being. Don't let them slump in their seats. That slump pushes vital organs out of normal position and depresses vitality—retards them in their studies—makes classroom work dull and uninteresting. Correct seating is an important health measure. It helps them concentrate—stops restlessness and "wiggling" about. Give pupils this aid to mental and physical well being.

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Good posture when seated—to lessen fatigue, put the body at rest, shape it scientifically and correctly for the years to come. School seating that makes it easy to sit erect. That frees vital organs from being cramped or pushed out of place. That permits their normal functioning. School seat-

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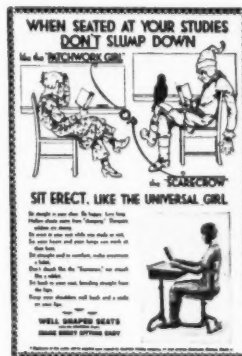


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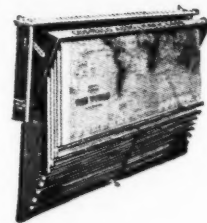


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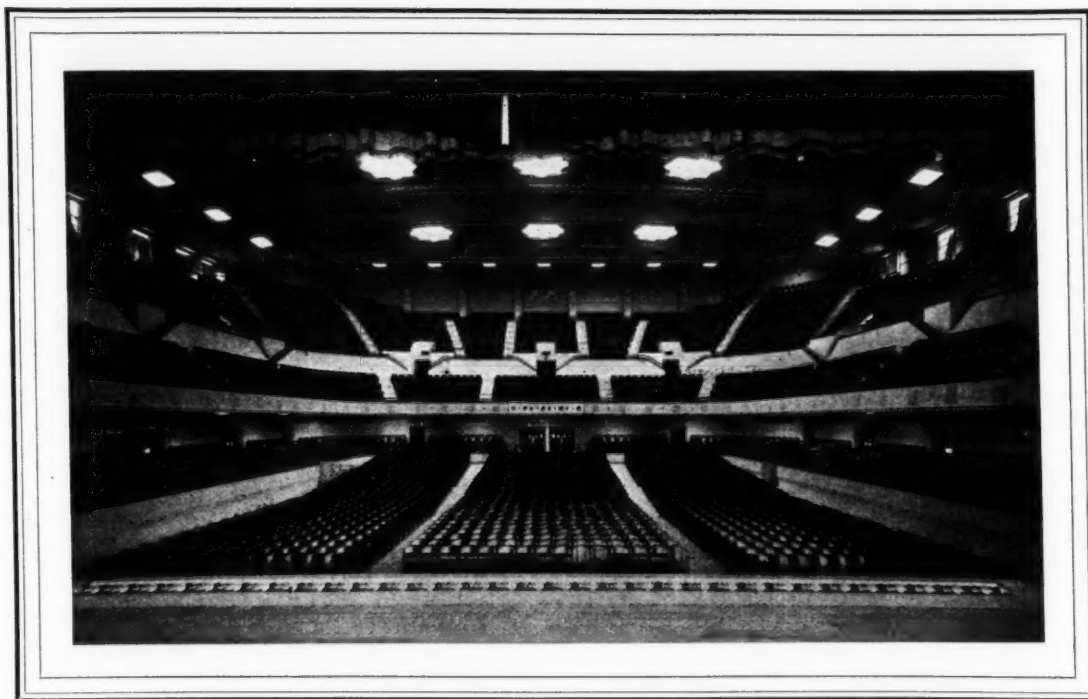
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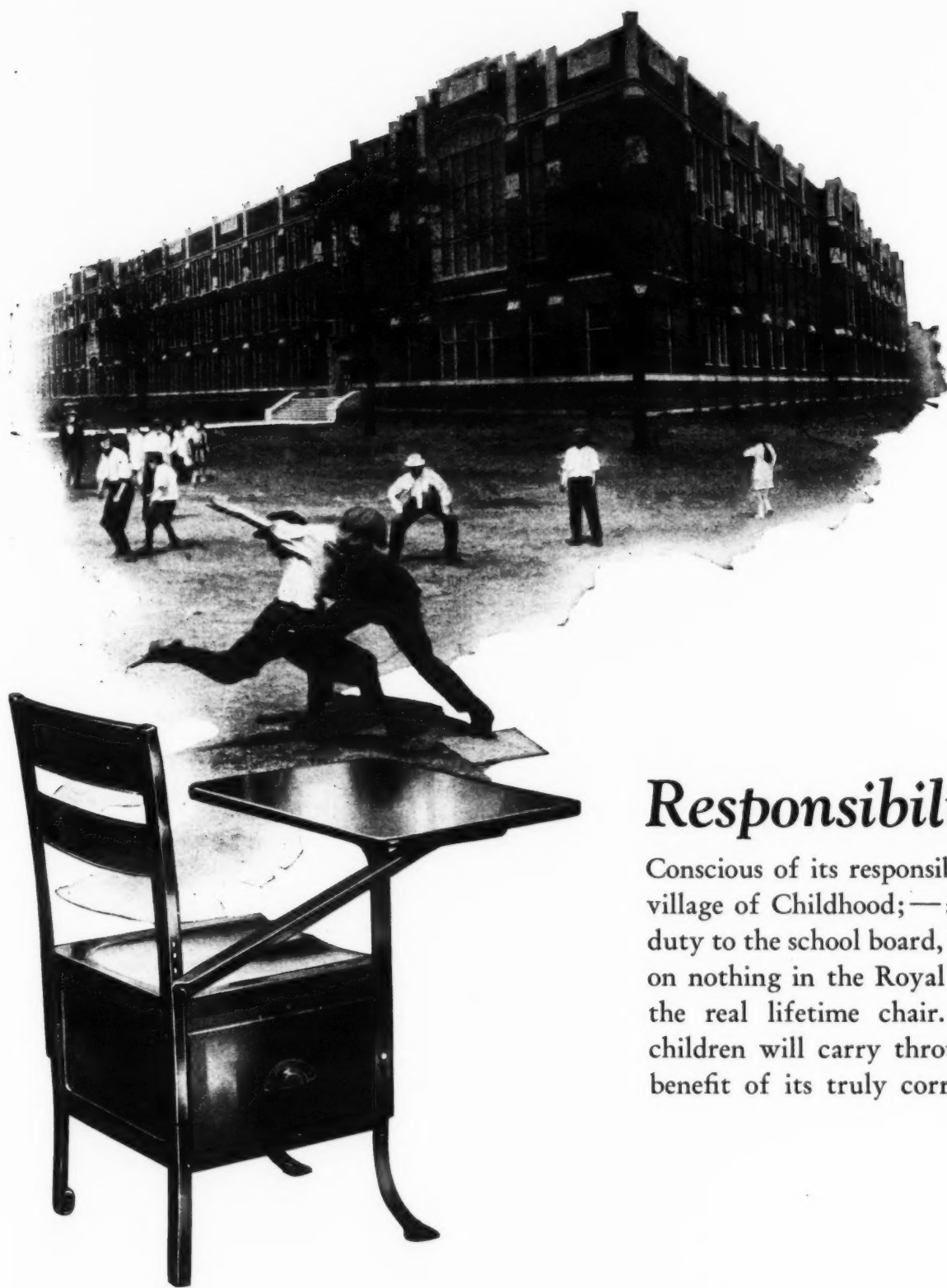


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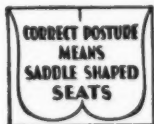
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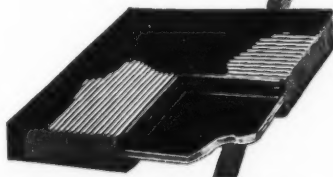
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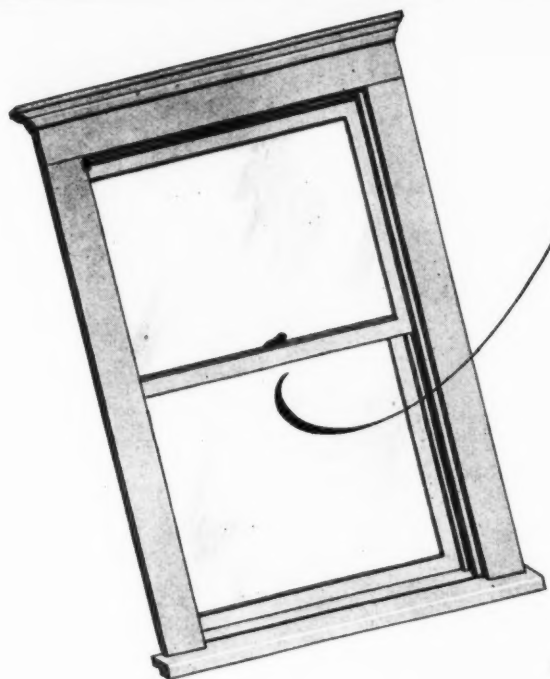
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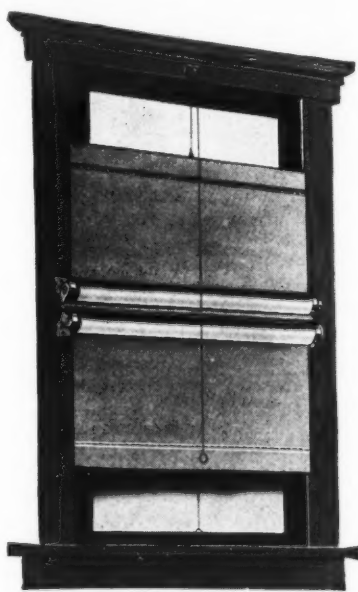
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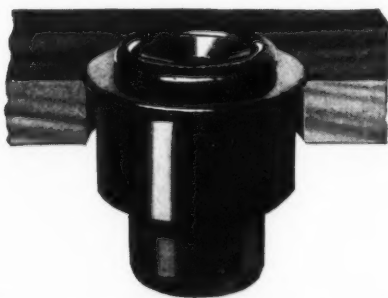
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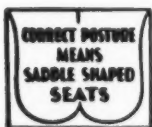


LEND me your ears," said Mark Antony. "Lend me your seats," say we—comfort today comes above all things.

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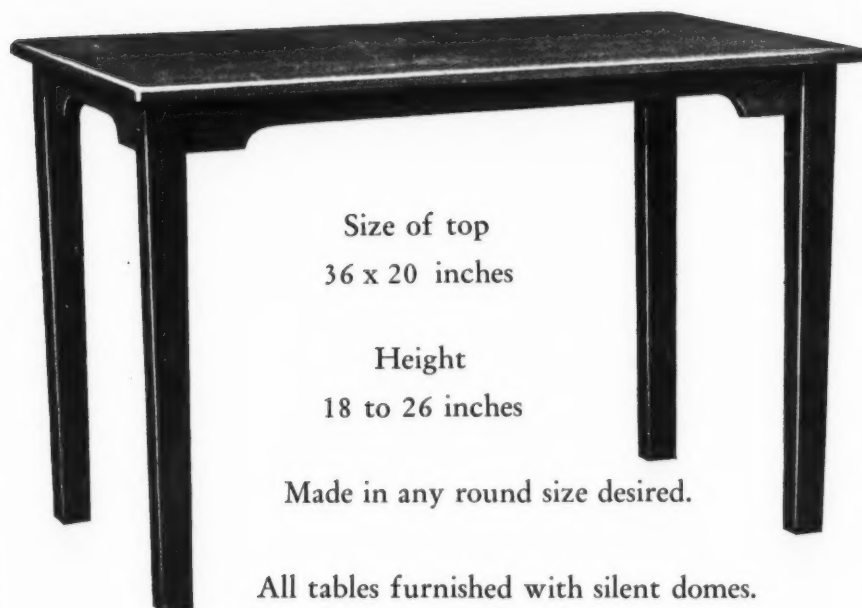
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1865

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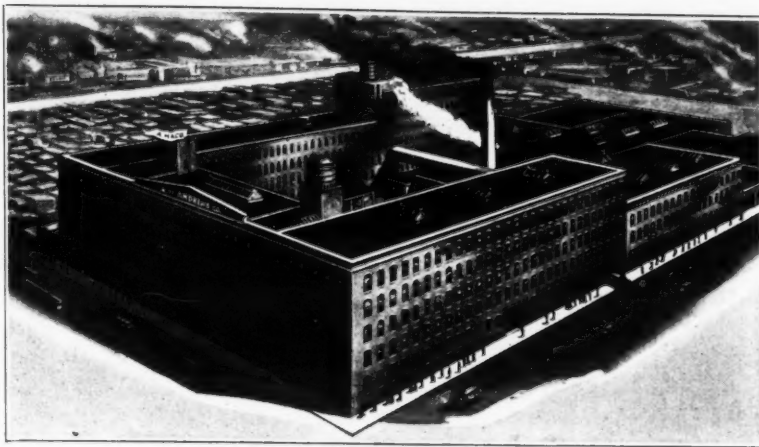
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MAPLE CITY STAMPING COMPANY
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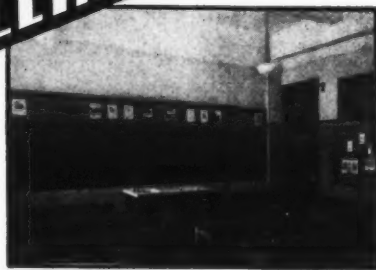
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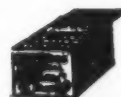


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Correct Posture
Insures Comfort
which is an Element
of Value in
The Ideal (Senior)
and
Perfect (Junior) Chairs

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FOLDING CHAIRS
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*Ideal for Schools,
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We manufacture the Boston Inkwell in three different styles. All have hard rubber tops and the glasses fit either style of top. These fit 1 27/32 inch holes.

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COMMON SENSE INKWELL



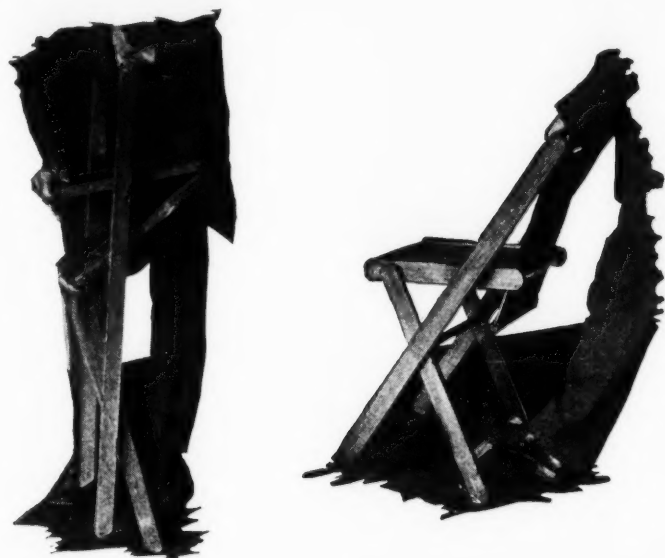
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WITH THE FOOT!

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Regular size
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Adjustable Pedestal

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and Other Fine Furniture

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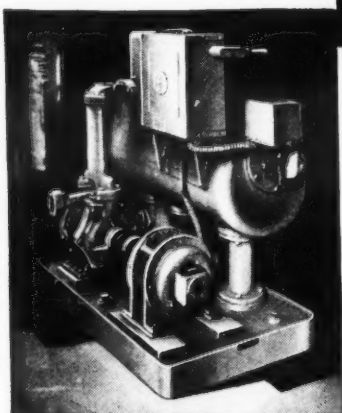
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THE AMERICAN School Board Journal

JULY,
1930

Eastern Office:
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NEW YORK, N. Y.

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The New Board Member

It has been the experience of all board of education members that it takes a year to become initiated in the school administrative service, and sometimes another year to secure a full grasp of its problems and the manner of their solution.

The older member will tell the new member to step cautiously, grow gradually into the school spirit, into the school atmosphere and into the school objectives. Hasty conclusions invariably lead to embarrassments, undigested departures to difficulty, and unwise utterances to superfluous discussion.

There is much to learn regarding a modern school system, be it large or small. The machinery employed in carrying forward the cause of popular education has many cogs and angles. No man can legislate intelligently unless he is familiarized with its structures, its plans, and purposes. No man can approach his task intelligently and circumspectly unless he knows the fundamentals of administrative procedure and deliberation.

The first impulse of the new board member is to seek counsel and guidance. He frankly admits the need of helpful suggestion. The older, more experienced, and more cautious member can, and frequently does, advise him. He will express his views on immediate projects and problems. The new member must, however, secure a complete understanding of the relation he bears to the several factors which constitute the scheme of school government as a whole.

The new board member who is determined to round out a useful service as a school administrator will first of all bring helpful literature to his service. Such literature is at his command. It will keep him in touch with the best thought, the latest departures, and the best conclusions in the field of school administration.

The AMERICAN SCHOOL BOARD JOURNAL, which has served the cause of progressive school government for nearly forty years, may properly be suggested as the most helpful and serviceable guide in all school administrative problems. Time has demonstrated that claim.

THE EDITOR.

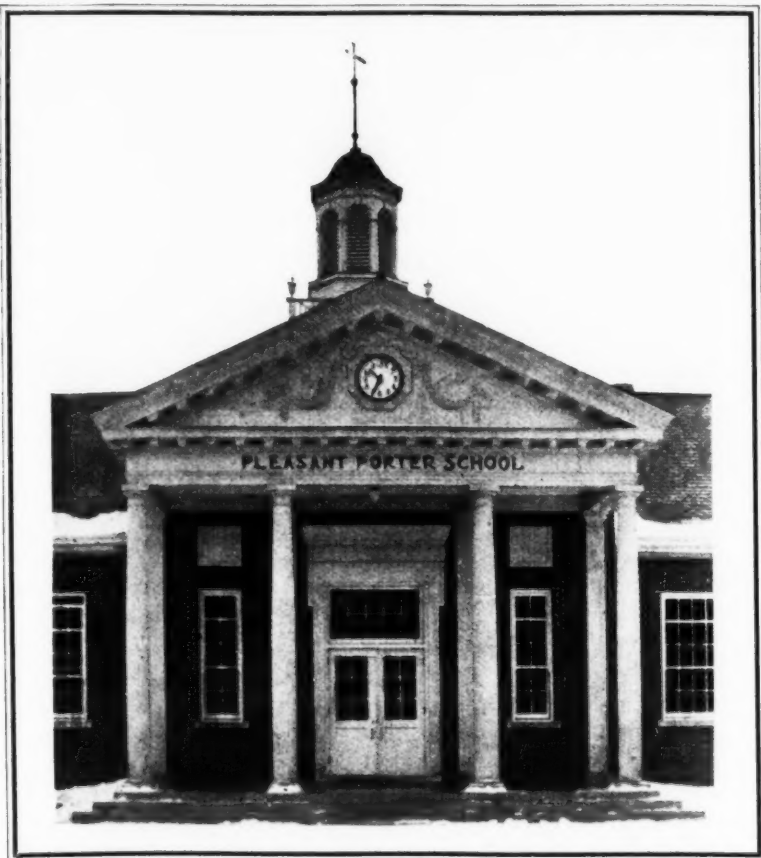
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Editorial Material—Manuscripts and photographs bearing on school administration, superintendence, school architecture, and related topics are solicited, and will be paid for upon publication. Contributions should be mailed to Milwaukee direct, and should be accompanied by stamps for return, if unavailable. Open letters to the editor must in all cases contain the name and address of the writer, not necessarily for publication, but as evidence of good faith.

The contents of this issue are listed in the Education Index.



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Engr. B. F. Cook,
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*give Beauty and Utility
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An outside clock on the front of the building is therefore of inestimable value to them. Operated in connection with the electric time system in the building, it gives pupils and teachers a convenient check and tends to eliminate tardiness.

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"STANDARD MAKES EVERY MINUTE COUNT"

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THE NEW TORCH LIGHTED FROM THE OLD!

The Pedagogue and the Teacher

John Dixon

Ye old-time PEDAGOGUE was stiff, prim, formal, studiously dull, and much given to the consideration of trifles. He knew little of the world of people and things, and was regarded as a tyrant by children and as a child by men. The very word "pedagogue" has come down to us laden with the satire of the centuries. It conjures up a personage, unnatural, crabbed, poverty-stricken, eccentric, unfortunate.

In the place of the pedagogue we have now more and more the TEACHER, a name made glorious to all time by the world's Lord and supremest Model, Him of the Loaves and Fishes and the Sermon on the Mount.

The moral and spiritual qualifications of the teacher have changed but little. To be a teacher is first of all to be a man or a woman, and the teacher must command the respect of men and women before he can hope to win the regard of those far keener judges of human motives, the boys and girls and young men and women of the schools. Teaching is 90 per cent character.

The Practical Teacher

The teacher of today must be *practical*. His teaching must focus on life. Education has become directly as well as remotely serviceable.

In the schools of today there is to be heard the click of the typewriter, the clink of dishes, the bang of hammers against wood and iron, and the whir and rattle of machinery; there is the odor of cookery and the artistry of skilled table service and home furnishing and decoration; there is the cutting and fitting of garments, the splash of paints upon canvas, the music of voice, violin and piano, the rhythm of the dance, and the shouts of the players in the gymnasium and upon the athletic field.

The Area of Education

Education has ceased to be merely a matter of the contents of books; and the cultural area has widened to include the religious, the social, the industrial, the economic, the artistic, and the recreative phases of living as well as the exclusively intellectual and academic.

But, valuable as these things are as media and objectives of education, it is not intended that they shall take the place of that tuition which is the product of the expression and influence of the personal qualities of the teacher. Teaching is personality molding personality to larger and better living. No range of depart-

ments nor wealth of equipment can minimize nor subordinate the demand for the living, vitalizing personality of the teacher.

Within the range of the reasonable and the attainable, then, what are some of these qualities which we may seek and properly hope to find in the teacher.

Fairness the First Quality

In the first place, the teacher should be *fair*, for fairness is at the very foundation of all right human relationships. If the pupil is to respect the teacher's decisions he must feel that the teacher means to be fair, that he will "render unto Cæsar the things that are Cæsar's."

The teacher should be *sympathetic and sincere*, even as Abraham Lincoln was sympathetic and sincere, tolerant, and open and kind.

The teacher should be *amiable*, as Sir Philip Sidney was amiable, liking much, smiling easily.

The teacher should have a *sense of humor* that he may not take himself nor his problems too seriously.

The teacher should have *large vision*, not losing sight of the few great ends amidst the exacting demands of the multitude of the means.

The teacher should have *life and fire* that dullness and monotony may never find a place in his presence.

The teacher should have *spirit and courage*. To command the ready coöperation of the strong and the challenging spirit of youth the teacher must be courageous and unafraid. He must be the accepted master, leader, and captain of his school.

The teacher should be calm, as the famous first Earl of Marlborough was calm, refusing to be greatly disturbed whatever the odds.

Love of the Job

The teacher should *know his subject*, that he be not a blind leader of the blind, and that he may the more easily convince of the great worth and profound attractiveness of knowledge.

The teacher should be *alert and up-to-date*, that he may interpret his message in the light of the day's latest advance.

And, finally, *he should like his job*, for though he should possess all of the foregoing qualifications and more, and yet failed to like the work of teaching boys and girls, he would be "but as sounding brass and a tinkling cymbal" signifying nothing.

comptroller to affix his signature. Notwithstanding the reduction made by the city authorities in the school-board's estimate, it was conceded that there were sufficient funds to the credit of the board remaining of the appropriated money to pay for the disputed claims. It was obvious that the amount of the increases could not have been included when the estimate was presented because no such determination had been made.

The court, in its decision, brought out that the board of education is a corporation separate and distinct from the city and is charged by the state with the responsibility of furnishing an efficient system of public education; it is not subject to, or controlled by, the municipal authorities. In order to enable boards of education to properly discharge the duties enjoined upon them, they are clothed with authority to act independently of the city authorities (*People ex rel. Wells and Newton Co. v. Craig*, 252 N. Y. 125; *Matter of Fuhrmann v. Graves*, 235 N. Y. 77). The education law was enacted so that the state might reassume its control over the education of the youth which it had previously delegated to the municipalities.

School Board May Fix Salaries

Attention was directed to the statute (Education Law, sec. 868, subd. 2), which provides that the board of education in a city of the second class, such as Schenectady, shall have power to create and maintain such positions as in its judgment may be necessary for the proper and efficient administration of its work. The board may also fix the salaries, not only of the supervising and teaching staffs of the schools, but of all other employees whose salaries are not fixed by law (Education Law, sec. 887).

It was further maintained that it is the duty of the city officials to appropriate the necessary funds for educational purposes, and to see that the money raised by taxation for that use shall not be used for purposes other than those authorized by the education law. The board of estimate may increase, diminish, or reject any item, except for fixed charges, for which the city is liable. The latter can reduce the total amount to be expended, but it cannot control the way in which such expenditure is to be made. In the last analysis it is for the board of education to say how the money within its control shall be expended (Education Law, sec. 877, subd. 10). The detailed items of the board's estimate are merely for the purpose of supplying the city authorities with information to aid them in determining the total amount to be appropriated (*Matter of Emerson v. Buck*, 230 N. Y. 380; *Matter of Reif v. Schwab*, 204 A. D. 50). In the items of the estimate for salaries of teachers, employees, and other persons assisting in the administration of the educational affairs, the city has no particular concern, except in the matter of directing how the funds are to be classified (*Matter of Fleischmann v. Graves*, 255 N. Y. 84).

School Board is Final Authority

The court, in its opinion, concluded that the salaries in controversy were lawfully fixed by the board of education, that that body had a right to fix them, and that the money was available to pay them. The comptroller in this case, could not question the legality of the item, since his receipt of a claim properly audited by the board of education entailed only the duty of ascertaining whether the requisition embraced charges against the education fund as disclosed by the records of his department. If the requisition was found to be accurate, he had no discretion, and his duty was to countersign the warrant. Consequently, the refusal of the city comptroller to countersign the warrants involved was not justified. The application of the board of education for an order of mandamus against the city was sustained.

School Boards Control Own Funds

The Schenectady Salary Decision

The supreme court of Schenectady county, New York, recently rendered an important decision in the case of the board of education of Schenectady, against the comptroller of the City of Schenectady, in which the school board sought to compel the comptroller to countersign warrants for the payment of salaries of officers and employees for the month of January, 1930. The case involved a controversy in which the school board claimed jurisdiction over the item of salaries, and the board of estimate and apportionment of the city claimed they could only increase salaries.

It appears that, in September, 1929, the school board presented to the municipal authorities its annual itemized estimate of the moneys required for the ensuing fiscal year, including the necessary amount for the payment of salaries of superintendents, teachers, supervising staff, and other employees. One item of the estimate was \$31,500 for the salaries of the administrative officers and employees. In October,

1929, the common council adopted the annual budget, after its approval by the board of estimate. The budget included the sum of \$2,262,902 to be credited to the board of education for educational purposes. The budget thus adopted allowed the sum of \$29,500 for the compensation of officers and employees in the office, and excluded the \$31,000 requested by the board of education in its original estimate. In December, 1929, the board of education increased the salaries to the extent of \$1,500 for the four individuals in the administrative department. These beneficiaries were not members of either the teaching or supervisory staff of the schools, but were employed in the administrative department.

History of the Litigation

Subsequently, the city comptroller of Schenectady refused to countersign the warrants for the payment of these salaries because the increases were not specified in the annual estimate. Later, a suit was brought to compel the

Program of Instruction Improvement in the Sacramento High School

I. H. Linder, Vice-Principal in Charge of Instruction, Sacramento High School

The Necessity of Supervision in the Secondary Schools

The recognition of the needs for improvement of the instruction in our secondary schools has dominated our convention programs for a number of years. But, like good intentions which are pushed into the future, definite programs of improvement have been slow to follow this recognition. Fifteen years ago Dr. Frank M. McMurtry startled the public with his declaration that, "in America teaching practices lag twenty years behind educational theory." If this was not an overstatement of the case then, it is scarcely less true now. Teaching practices in our secondary schools have been weighted down with a burdening freight of tradition, while the theory of secondary education has become increasingly sensitive to the social demands on the school. In secondary education, theory and practice are scarcely on speaking terms. While theory may be divorced from reality, classroom practice is certainly dominated by many inflexible customs. The net result in our secondary schools is a sort of functional neurosis of discontent. Classroom teachers do not understand the demands of educational leaders; our leadership becomes impatient with classroom practice and many proposed reforms end as feeble gestures. Instruction improvement results in a neutrality, and standing in the middle of the road receives bumps from both sides and gets nowhere.

The expansion of our secondary schools to include nearly every type of adolescent youth has rendered purely academic teaching quite unsatisfactory. This expanded and diversified school population demands many adjustments in methods of teaching. The phenomenal increase in the materials of instruction in every field, has forced the problems of the selection and organization of materials to the front as constant teaching difficulties.

The high-school principal in a large school, while recognizing the primary importance of instructional improvement, finds that the multitude of pressing administrative matters minimizes the amount of time he can devote to this work. While he will never wish to surrender this work to subordinates entirely, the time available can probably best be spent in giving advice and guidance to those to whom he has intrusted the problem of instructional improvement.

The supervisory efforts of department heads have long been recognized as inadequate. The method of their selection, as well as the nature of their other duties, do not enable them to render the type of instructional improvement demanded in the modern secondary school. Consequently, in the Sacramento High School, the department heads have been made department chairmen with purely administrative work, and with supervision of instruction no longer expected of them.

Organization for Improvement of Instruction in Sacramento High School

The Sacramento High School has organized the whole range of administration and supervision into three separate divisions. Pupil counseling and pupil programming with records and reports are placed under the direction of a vice-principal in charge of pupil counseling. Purely administrative matters such as office secretaries, cafeteria manager, and comptroller of student funds are placed under the immediate direction of the principal. Instructional matters are under the direction of a vice-principal in charge of instructional improvement.

The vice-principal in charge of improvement of instruction is the administrative officer directing the instructional program. Policies on instruction are worked out by a staff for the improvement of instruction. This staff is composed of the principal of the high school, the vice-principal in charge of pupil counseling, and a teacher who, as faculty adviser, gives four fifths of her time to the program of supervision. The assistant superintendent in charge of secondary schools for the whole city is also a member of this staff. In the main, the working of the program for the improvement of instruction is directed by the vice-principal in charge of this work, and the faculty adviser. This plan has the advantage of recognizing the importance of improvement of instruction by placing it on a par with other phases of the high-school program and assigning definite responsibility for it.

Different Viewpoints in Supervision

There are three more or less distinct conceptions of the improvement of instruction as faced by those in charge of this work in the field of secondary education. First, supervision must insist upon a minimum quality of teaching from each member of the teaching force, before attention can be given to a more expansive program. Second, supervision should be conceived as a service program to teachers, assisting them in ways recognized by them as beneficial. Third, supervision of the highest type has for its purpose stimulating creative teaching by the individual teacher such as will enlist her best professional resources. While these phases are not entirely distinct, they do represent different approaches to the problem, and they imply different qualities of teacher participation in the improvement program. All three phases are paralleled in what big business is doing under the title of training on the job. Every large organization faces the delimiting effects of a high degree of specialization on the part of its personnel so that some program of training on the job becomes necessary to unify these separate specialties.

Close Supervision

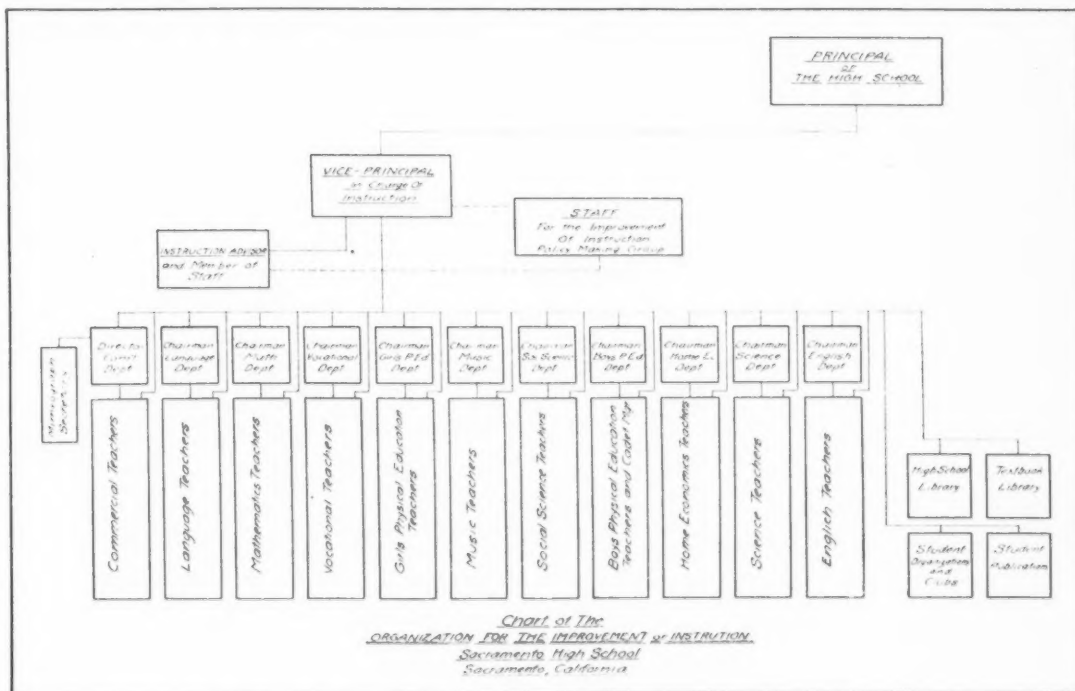
Supervision of the type which has for its purpose securing from each member of the teaching force a minimum acceptable service, Dr. Newlon has aptly called close supervision. It is

difficult to conceive of a situation where none of this type of supervision would be needed. In fact, it is the phase most carefully looked after in the ordinary system. Close supervision always concerns itself with securing from each teacher adherence to those practices or policies which are necessary to the system's working as a unit. While this type of supervision is, in most instances, more immediately urgent than others, it should not be regarded as adequate. Among the many phases of this type of supervision we mention the following as typical: conducting classes for new teachers for the purpose of initiating them into the policies of the particular system, insisting on proper order and discipline in the classroom, looking after the physical comfort of pupils, providing adequate materials of instruction, remedying conditions giving rise to complaints, correcting teaching practices which operate against the learning situation, and checking on the achievements of pupils.

Close supervision is always necessary to a certain extent, but there is a real danger that it will be regarded as a complete program of instructional improvement. On the whole it is probably the easiest type of supervision, and certainly requires less training than supervision regarded as service, or supervision which has for its purpose stimulating creative teaching. It tends to be inspectorial; and while inspection may better teaching conditions, it is not supervision in the best sense of the term. On the side of teacher participation, close supervision is more likely to emphasize teacher conformity than the broader phases of teacher participation. It is the kind of supervision which has brought most of the odium to the whole program from the teacher's point of view. It emphasizes uniformity, rather than individual abilities in teachers.

Supervision as Service

Supervision as service makes provision for real assistance to the teacher, ranging all the way from "trouble shooting" of the common type of bringing new technique in to the classroom as the result of enlisting the teacher's best professional resources. The service is an expanding program growing with the development of the teacher, but above all, keeping his point of view in the program. No demand from the teacher for assistance is too trivial not to war-



PLAN FOR ORGANIZING TEACHERS IN A HIGH SCHOOL, FOR THE IMPROVEMENT OF INSTRUCTION

Buying School Supplies

C. V. Kelty, Business Agent, San Bernardino City Schools

Buying school supplies is a matter to which we may apply very few hard-and-fast rules. The large district and the small district, the rich district and the poor district, each has a different problem to contend with. The employment of special supervisors in the larger districts also complicates the decision as to the quantity, quality, and range of supplies to be purchased. There are, however, five fundamental points that I believe all districts should observe when buying supplies. These points are: (1) *what to buy*, (2) *how much to buy*, (3) *what quality to buy*, (4) *how to buy*, (5) *when to buy*. I shall deal with each of these points individually and I believe every district, large or small, will find that their dollars go farther, that deliveries of supplies will be more prompt, and that there will be fewer substitutions on their lists if the following suggestions are observed.

What to buy? We should answer that question first of all. We want paper of several different kinds and sizes, pencils, pens, crayons, etc., but we can't stop there. Let me illustrate what I mean by pointing out the errors that may occur in ordering a single item, foolscap paper: We can buy foolscap in full-size double sheets, full-size single sheets, half sheets with no margin at the top, half sheets with a margin at the top, with lines spaced $\frac{3}{8}$ in., $\frac{5}{8}$ in., or wider. It can be of 12-, 16-, or 18-pound stock; the reams may contain 480 or 500 sheets. Right here we have 12 specifications on a single item, any one of which can be omitted, and in many cases they are all omitted.

Clear Specifications Needed

In the past few years a number of districts in San Bernardino county have sent their lists to me with the request that I get prices on the items required. I am always glad to be of service, but it is impossible in many cases to determine what is wanted. I received a list last year which read: Ten reams foolscap, 2 gross pencils, 12 reams scratch paper, 5 boxes chalk. I have pointed out the difficulty of purchasing foolscap on an order of this kind, and you can readily see that neither I nor the dealer could determine beyond the possibility of error whether the pencils were to be No. 2 pencils for regular school use, or drawing pencils. The scratch paper might be 6 by 9 in., 9 by 12 in., or a special cut for use on a typewriter. The chalk required might be hard, soft, or colored, of any one of half a dozen brands. An order of this kind cannot be filled accurately, and too frequently the dealer will fill it with odds and ends of stock or poorer brands of supplies yielding a greater margin of profit to him.

Here I wish to point out what some of these errors may cost. All half-sheet foolscap used by the San Bernardino city schools is ordered with no margin at the top. Our superintendent requires that both sides of the paper be used. The margin takes up approximately one fourth of one side of each sheet. If we permit the dealers to sell us paper with this margin, and they must get rid of it after cutting full-length sheets, we lose in writing space 150 reams each year on a 1,200 ream order. To a district using only one side of this paper the waste would be 300 reams a year on a 1,200 ream order.

Late Catalogs Advisable

The answer to all this is: Specify fully every item required. Get catalogs from the school-supply houses and give correct names, numbers, and descriptions for every item on your list. Keep those catalogs up-to-date. Be sure to do this. Just recently we received a request for a lathe for the manual-training department in one

of our schools. The specifications seemed to be faulty, and the request went back to the department for further information. This time we got just what we wanted — the lathe was described perfectly, the catalog number and the name of the manufacturer were given. I ordered the lathe and in due course of time received the information that this lathe was no longer manufactured. Investigation developed the fact that the department in which the order originated was using a catalog three years old.

In San Bernardino the superintendent also requires that all departments of the senior high school and the junior high schools furnish estimates of cost for all items requested. This may not be a practical procedure for smaller school districts to follow, but it has these advantages: Each department has a budget appropriation based on the requirements of the department. Estimates of cost furnished by department heads keep each department in touch with what it is using in supplies and equipment, and encourages a tendency to purchase first those items which are required most.

How much to buy? The answer to this question should be the same for all districts. Buy what you need, and no more. Right here opinions will differ, depending on the wealth of each district, the number and ability of your special supervisors, and the range of subjects taught, but the answer will still hold good: Buy what you need, and no more. We can't afford to overbuy simply because someone comes along with a bargain. We have a fairly definite sum of money which we may spend each year. That sum should be apportioned according to our various requirements and we should then follow our apportionments as closely as possible. I have been with this school system almost fifteen years. In that time I have never bought a drawing pencil. Up to three years ago I had never bought refills for paint boxes. For several years after I entered school service there was a sufficient quantity of colored chalk and certain other supplies to meet all requirements. This condition came about through buying bargains. Savings can be effected more safely in other ways.

Possible Economies in Towels

I have pointed out how half-sheet foolscap without the margin, together with the use of both sides of the paper, will reduce the quantity needed. We have found that 6 by 9-in. scratch paper is more economical than sheets 9 by 12 in. The average youngster begins figuring in the center of a sheet of paper. With the smaller sheet he is compelled to work out toward the edges of the paper, whereas with the larger sheet much good writing space is wasted through the fact that he doesn't have to use it. This same observation applies to the use of paper towels. We use a junior paper towel. Ten years ago there were no small paper towels on the Pacific Coast, so far as I could learn. We bought the large towels, had them cut in half, and found that in one year we saved 25 per cent on our towel bill. A representative of a paper house became interested and brought in the factory representative. He checked our records, and later his company put a junior towel on the market. A number of paper-towel manufacturers began putting small towels on the market at about the same time. The reason for the saving is simply this: We wipe our hands in the middle of a paper towel, leaving a wide margin unused. The average youngster will draw two towels, large or small, whether he needs them or not; then if his hands are still wet he draws a third towel, but right there he

calls it a day and quits. Three small towels, if he uses that many, equal only 75 per cent of two large towels, and the remaining 25 per cent is saved without harm to anyone.

Keep Inventory Records

Knowing how much to buy of each supply is not difficult if a card record is maintained of all supplies used. By maintaining a record of supply consumption every district can determine its per-pupil consumption and its per-pupil cost. When this is done, we need not guess at how much to buy and half the difficulties of budgetmaking are eliminated.

What quality to buy? In answering that question I have in mind certain school districts which buy nothing but the best — or rather, nothing but the highest-priced supplies. A number of traveling men for school-supply houses have told me of one district which has great difficulty in spending its allotment of school funds each year. This district is so wealthy in proportion to school population that the school-tax rate is very low. The superintendent does not want the rate of taxation reduced, and it therefore becomes necessary to keep down accumulating balances by paying higher salaries and buying more expensive supplies. Let's hope this is an exceptional case, for there is no justification possible for such expenditure of school funds. The teaching of extravagance, either through excessive distribution of supplies or through the use of too-expensive supplies, is a practice which should not be tolerated in any school system.

Inferior Goods Wasteful

It should be the aim of every district to use supplies of good standard quality. Money may be wasted in buying inferior supplies just as surely as it may be wasted in buying supplies of better quality and higher price than are required for school use. Free samples are furnished willingly by all school-supply houses. Get these samples and test them until you have selected standards that you know will be satisfactory, then specify these standards, or equal, when calling for bids on supplies.

How to buy? The best single answer to this question is: Standardize your supplies to the best of your ability. Don't buy several different kinds of pencils, paper, chalk, etc., for the same use. I remember very well, some ten years ago, that we received requests for five different kinds of modeling clay on the lists for that year's supplies. That clay would have cost about 33 cents a pound if the order had been split in five different brands; it actually cost around 29 cents a pound when the order was standardized and the total quantity of one brand was purchased. At the present time we use powdered clay which costs us but 4 or 5 cents per pound.

Standardization Means Economy

Standardization makes it possible to buy larger quantities of a single item, and quantity purchase means reduction in cost. The supply house can stock one line of pencils more economically than it can buy and handle a dozen different brands. This statement applies with just as much force to practically every other school supply. If we continue to order a wide range of any given supply, the supply houses must continue to carry in stock those things for which we ask. To carry a great variety of stock ties up their capital and frequently causes heavy losses through changes in price and deterioration of certain supplies. Someone has to pay the losses, and someone, in these in-

stances, means the districts buying school supplies.

Again, in direct proportion to the care with which we standardize our orders, we shall find that errors in delivery are fewer and deliveries are more prompt. Supply houses frequently experience much difficulty in locating and securing certain so-called "off supplies" for which we ask. Right here the temptation comes to the dealer to substitute something he has in stock rather than spend time and delay the order through trying to fill it with the exact item specified. The substitution is frequently equal to or better than the thing for which we have asked, but the dealer has scarcely a chance to make us believe it.

It is easier to standardize elementary supplies than high-school supplies, but sincere and discriminating effort toward standardization of supplies will, in the end, pay any district, not alone in dollars and cents, but in time saved and in better service from the houses with which you do business.

Small Districts Pay Higher Prices

The smaller districts should not expect to buy supplies as cheaply as do the larger city districts. It simply can't be done. First of all, the larger districts buy greater quantities. Again, the larger orders generally carry the clearer specifications, because they simply can't afford to be flooded with deliveries which do not come up to requirements and it takes too much time to correct these errors. Clearer specifications mean less trouble in handling orders, and this fact, gives the larger districts a very material price advantage over smaller districts.

Some time, legislation will be passed making county superintendents the purchasing agent for all districts with an average daily attendance below some specified number. When such legislation is enacted, the smaller districts will come into their own in the matter of prices paid for supplies, for the county superintendent will then pool the supply lists of a number of small districts and thus secure the advantage of quantity purchase. Practically all supply houses will oppose such legislation, and some districts may do so, but such a law would be based on sound business principles.

Dealer Need Not Worry Buyer

There is and always will be a tendency on the part of school-supply houses to combine to hold prices above a given level, or margin of profit. This is not a matter for grave concern. Supply houses *must* make a living profit on what they sell, otherwise they must furnish inferior supplies and give poorer service, or go out of business. We are concerned, however, in seeing or in attempting to see that the margin of profit required by supply houses is fair to us as well as to them.

The last of our five questions is: *When to buy?* The answer is: Buy early. We plan to have our lists out for bids each year about April 1st. Ninety per cent of all school districts in the state wait until the months of July and August before placing their orders. If you take time to consider it, the result is obvious. To meet this sudden increase in business, every large supply house has to employ extra help. This extra help is, as a rule, inexperienced and therefore costly in the number of errors made, and in the amount of service rendered in proportion to wages paid.

Here, again, the cost is passed on to us. With 90 per cent of our purchases falling within a period of 60 days, stocks of supplies are rapidly exhausted. On the Pacific Coast fill-in orders from the east are late in arriving, for the east is also enjoying the rush season, and transportation on small shipments is more expensive than on carload shipments. Thus, the district that is late in placing its orders, must pay a higher price for supplies which will probably arrive

late and which will carry many odds and ends of depleted stocks as well as many substitutions for items which cannot be secured at all.

Estimating Needs

If a proper record of supply consumption has been maintained, we can order supplies as easily and as accurately in the middle of the school year as at its close. It is only necessary to total the consumption of any given supply at the end of any given number of months, then divide the total consumption by the number of months since school began. This will give you the average consumption for one month. Multiply this unit by the number of months in your school year, and you have, very accurately, the quantity you will need of any given supply. If your district is growing rapidly, you will need to make allowance for that growth. For a number of years we have added one fifth to the total

of practically all our requirements to provide for our yearly increase in attendance. There are some supplies, such as blackboard erasers, pointers, rulers, and other items not consumable within the period of one year, that must be given individual consideration. It is not always safe to order these supplies from a record of consumption covering a period of less than one to even two full school years.

What I have been trying to tell you, may be boiled down into one short paragraph:

First, decide what to buy, and describe it fully. Second, base purchases on past consumption—buy what is required, and no more. Third, buy good standard quality—more-expensive or less-expensive supplies mean money wasted. Fourth, standardize requirements and secure the reduced cost of quantity purchase together with prompt delivery. Fifth, buy early, and avoid the rush.

A Modern Hearing-Conservation Program

Hugh Grant Rowell, M.D., Teachers College, Columbia University

Progressive school administrators have been impressed deeply with the tragedy of certain apparently mentally defective pupils, who turned out to be of good mind, but possessed a handicapping auditory defect. It is not surprising that mental stigma should be the first thought, since the conservation of hearing movement is comparatively new and its educational ramifications as yet considerably undeveloped.

In school health examinations or annual inspections, some sort of hearing test is given frequently. Unfortunately, if any are given at all, the tests used have been either the so-called "standard whisper" or the watch test. Except as an additional test in the hands of the otologist, the standard whisper does not exist, and the actual whispers used vary so much between different persons testing, that the results fail to reveal any except the most outstanding defects which were probably known or suspected. The watch test, which is standardized for each time-piece, allows so little range between the normal and the defective pupil, that this test cannot be used. These statements are made with the full recognition that the hearing tests in school may not be more than rough inspections at best, and that further and more accurate testing must be done for children whose hearing cannot be considered normal.

Program for Hearing Conservation

It is now possible to recommend a complete program for hearing conservation and for the public-school education of auditory defectives who are not institutional cases. Summarized, this program consists of:

1. Tests with the 4A or 3A audiometer. Usually the 4A (a group test) is favored as 40, or even 48, children can be tested at a time. Testing is not satisfactory at present with the 4A below the third grade at best. The 4A, or phonograph audiometer, is simply a phonograph using especially prepared records, the sounds from which are caught on a magnetic pick-up and transmitted electrically (electricity supplied by the magnetic pick-up) through cords to boxes, to which are attached eight head-phones each. A man's voice and a woman's voice repeat three- or two-digit numbers, which the pupil is supposed to record on special forms, as long as he can hear them. The sounds on the record are attenuated gradually, so that the number of units of hearing loss, if any, can be determined by a rapid marking of the pupil's record. Suspicious cases are retested and, if findings are confirmed, then a further study is indicated.

2. Clinical study of cases screened by audiometers. Usually this work is done by local otolo-

gists and local hospital clinics. It is possible by means of the 2A (or tuning fork) audiometer to map out and show graphically the exact range or pattern of hearing of any individual. This will reveal whether the loss of hearing is general, or of high or low tones, which is of diagnostic significance.

3. Lip-reading classes for auditory defectives of even mild degrees, and others for whom this training is believed useful, on the bases that (a) the lip reading will make the pupil more effective in his classwork through understanding better what is said, and (b) lip reading in the milder cases, or in fact any case, is an insurance against the defect later developing to such a degree that, without lip reading, communication with other persons would be extremely difficult. These lip-reading lessons are given perhaps twice a week, for periods not exceeding half an hour at most. Frequently, they are shorter. Thus, there is no interference with classroom work, in fact, improvement is expected. The lip-reading teacher can, and sometimes does, actually serve as a special tutor, to some degree, for certain pupils who need such service, especially during the early lessons in lip reading before its effect has begun to be felt. This plan is now used in the Horace Mann Elementary and High Schools.

4. Education of teachers handling hard-of-hearing pupils in methods of making classroom work most effective. This is in addition to certain general information given to all teachers about detecting possible hard-of-hearing cases, improvement in personal diction, and the desirability of sympathetic and inconspicuous handling of the deafened.

Program Requires Systematic Follow-up

Obviously a mere testing program, without the follow-up, is only a start. To some, such a limited and incomplete program would not seem warranted. On the other hand, the findings are likely to be so impressive that the need for the introduction of the whole plan as a community project, with the school coöperating, will be recognized.

The apparent expense of these programs is warranted, on the basis that it requires only a few avoided retardations to pay each year for the instrument and operator. School nurses are effective as testers. Lip-reading teachers are specially trained. Approved courses are given in Teachers College, Columbia University, which are conducted in coöperation with the propaganda groups sponsoring the nation-wide hearing-conservation campaign.

(Concluded on Page 140)

What the School Board Wants to Know!

J. John Halverson, Superintendent of Schools, Chaska, Minnesota
O. S. Glover, Superintendent of Schools, Edina-Morningside, Minnesota

About what does a board-of-education member think when he thinks as a member of the board of education? The American system of almost complete local control of educational matters has placed on the citizens of each community a unique responsibility. There is no school for preparing board members for this duty. They are, so to speak, called. And they are of necessity called upon to think about, weight, and decide many important questions.

A check list containing 76 items, identical with one previously submitted to superintendents in studying superintendents' monthly reports to boards of education, was distributed to the school-board members attending the 1930 state convention of the Minnesota State School Board Association. Each one was requested to indicate the extent to which he is interested in the matters on which superintendents make monthly reports. The evident care with which these check lists were filled out indicates most clearly that school-board members do think most logically and definitely when they think as members of boards of education.

The office of superintendent of schools has passed definitely out of the village schoolmaster era. Goldsmith's picture of the schoolmaster:

The village all declared how much he knew,
'Twas certain he could write, and cipher too.
might be changed to:

The school board was aghast at what he knew,
For he knew standard tests, and I.Q.'s too.
Just as definitely has passed out the old school-committee member who came on the last day of school to catechize the "scholar." The modern school-board member knows a lot, and the information gathered from the 1930 type of Minnesota school-board member indicates that he wants to know a whole lot more.

The replies of board members indicate that they are interested in a wide variety of subjects related to school administration and that with only a few exceptions their interest closely parallels that of the superintendents'. This fact is significant and must be considered in determining what the scope of a board report is to be.

TABLE I. Financial Matters of Interest to Board Members and Superintendents

Item	Board Rank	Sup't's Rank	Board Interest in Percentages	Sup't's Written Reports in Percentages
Monthly bills.....	1	1	79	92
Salary schedule.....	2	8	76	57
Income from taxes.....	3	4	73	65
Maintenance recommendations.....	4	6	68	63
Budget.....	5.5	2	67	86
Expenditures.....	5.5	3	67	68
Tuition pupils.....	7	11	65	51
Indebtedness.....	9	7	55	59
Insurance.....	9	10	55	54
Financial recommendations.....	9	12	65	51
Building situation.....	11	5	52	65
Recommendation for transportation equipment.....	12	19	51	16
Bids on school expenditures.....	13	13	50	41
Monthly financial statement.....	14	9	49	54
Sinking fund.....	15	16	45	27
Retirement fund.....	16	18	41	27
School banking.....	17.5	15	40	32
Revolving fund.....	17.5	17	40	27
Petty cash.....	19	14	39	41

Table I shows that a large percentage of school-board members is interested in financial affairs. While they rank matters dealing with income higher than these matters are ranked by superintendents, this seems quite natural, for school-board members are constantly faced by the question, "From where shall the money come?" The superintendent who prepares a careful budget, balancing his anticipated income and expenditures in advance, even to the extent of estimating the probable cash balance at the end of the year, and who keeps his board regularly informed of the condition of the budget, will apparently be performing a service to school boards which they strongly desire. There can be no doubt that board members appreciate the assurance that expenditures will be

NOTE — School executives as well as school-board members will find this paper of exceptional value. It indicates an astonishing breadth of interest on the part of school boards in educational matters. — Editor.

controlled to fit the income, and that this assurance will tend to create confidence in the administration, which in turn will operate to make the school more efficient in every department. Under a budget system the high-pressure-salesman type of teacher will be unable to influence the administration to excessive expenditure in one department at the expense of another. The janitors will not feel dissatisfied at being denied necessary tools and materials, but will know before hand what is to be provided for their use and encouraged to the efficient utilization of the materials and equipment provided.

TABLE II. Personal Activities of Interest to Board Members and Superintendents

Item	Board Rank	Sup't's Rank	Board Interest Expressed in Percentages	Sup't's Written Report Expressed in Percentages
Election and duties of superintendents.....	1	17	77	30
Attendance.....	3	1	72	86
Faculty recommendations.....	3	2	72	76
Compulsory education.....	3	5	72	54
Enrollment of pupils.....	5.5	3	67	65
Janitor recommendations.....	5.5	6	67	51
Census report.....	7	4	65	59
Teaching load.....	8.5	8	62	51
Pupil discipline.....	8.5	23	62	16
Pupil expulsion.....	10	11	58	38
Faculty dismissal.....	11.5	12	58	38
Pupil dismissal.....	11.5	15	54	32
Sick leave.....	13	10	52	49
Resignations.....	14	9	51	49
Supervision of housekeeping.....	15	19	47	24
Faculty assignment.....	16.5	7	46	51
Leave of absence.....	16.5	14	46	35
Pupil delinquency.....	18	20	45	19
Pupil exclusion.....	19	18	40	24
Recommending supervisors.....	20.5	13	38	38
Recommending transp. employees.....	20.5	21	38	19
Student government.....	22	27	37	11
Personnel promotions.....	23.5	16	36	32
Noonday problems.....	23.5	25	36	11
Faculty retirement.....	25.5	24	33	16
Corporal punishment.....	25.5	26	33	11
Pupil transfer.....	27	22	29	19

The election of the superintendent of schools is the chief duty of the board of education. In Table II this duty is ranked first by board members. The median tenure of superintendents

Aside from the difference on the above subject a rather close agreement exists between board members and superintendents on the relative importance of personnel activities. Seventy per cent of the first 10 items emphasized by superintendents in Table II are ranked among the first 10 subjects of interest to board members. This indicates a high degree of interest on the part of board members in the personal factors in school organization. The percentage of board members interested in 23 items of the 27 in Table II is greater than the percentage of superintendents manifesting interest by discussing these items in their reports to their respective boards. One explanation for this situation may be the greater ease with which personnel matters are understood, as compared with the more abstract side of education. Vital factors such as attendance and compulsory education are of great interest to the board members as well as

the superintendents, both subjects being among the first 5 in rank.

The school boards of Minnesota evidently exert a profound influence in the selection of janitors, since two thirds of them are highly interested in recommendations of men for this type of work. That only half of the superintendents mention this subject in their reports is further evidence that the selection of employees for this important work is largely dictated by the boards. Only a fourth of the superintendents report on janitorial housekeeping, while about half of the board members are highly interested in the results pertaining to care of the buildings.

There is a real need for superintendents to devote more space to the personnel activities in their reports if they are to supply the boards with adequate information in this field.

Perhaps the most surprising fact to superintendents as a body is the extent of the school-board members' interest in supervision of instruction. Superintendents have been inclined to regard this subject as too complicated for the average board member. The many modern tech-

TABLE III. Instructional Activities Which Interest Board Members and Superintendents

Item	Board Rank	Sup't's Rank	Board Interest Expressed in Percentages	Sup't's Written Reports Expressed in Percentages
Extracurricular activities.....	1.5	2	66	76
Supervision of instruction.....	1.5	4	66	57
Library.....	3	5	65	51
State Department of Education reports of inspection.....	4	1	63	78
Textbook recommendations.....	5.5	7	49	41
Pupil failure.....	5.5	12	59	19
Pupil progress in higher institutions.....	7	13	54	14
Pupil diagnosis.....	8	10	57	27
Standard test scores.....	9	6	49	41
Faculty meeting.....	10	11	46	21
Pupil classification.....	11	9	45	35
Department reports.....	12	3	38	65
Special rooms.....	13	8	37	38

TABLE IV. Other Activities of Interest to Board Members and Superintendents

Item	Board Rank	Supt's Rank	Board Interest Expressed in Percentages	Supt's Interest Expressed in Percentages
Parent-teacher association.....	1	14	67	21
Annual school election.....	2	7	63	32
Minutes of board of education.....	3	8	62	30
Supervision of buildings and grounds.....	4.5	2	59	63
Playground problems.....	4.5	10	59	27
Fire drill.....	6.5	9	57	27
Pupil disease.....	6.5	16	57	16
Athletic reports.....	8	1	51	73
Coal analysis.....	10	4	47	38
Physical examinations.....	10	5	47	32
Medical examinations.....	10	5	47	32
Dental clinic.....	12	11	46	24
Nurse reports.....	13	3	41	51
Publicity.....	14.5	12	40	24
Transportation routes and schedules.....	14.5	13	40	21
Preschool clinic.....	16	17	27	14
Cafeteria.....	17	15	22	21

niques of supervision have only recently been accepted and employed by the more progressive superintendents; yet this study reveals that two thirds of the board members regard this subject as one not only of vital importance, but manifest a desire to have information about the subject. As the techniques of supervision grow more complicated, it becomes the duty of the superintendent to explain and interpret these techniques and their application to board members, if he is to prevent the gap between the technical phases of education and the layman's comprehension of these from growing wider.

Salesmanship is a factor in life whether we will it or not, and salesmanship of supervision by the superintendent to his board is necessary for school-board support.

Standard test scores reveal to what extent the measurable side of instruction has been successful with reference to the pupils' ability to profit by instruction. Half of the board members desire information of research significance, while two fifths of the superintendents make reference to it in their reports.

Superintendents have been prone to regard their responsibility for the individual as ended when he marches across the stage with a high-school diploma. But the board members, with the wider viewpoint, wonder what is going to happen when this product of the local school enters college. Superintendents can perform a worthy service to their community by checking on the pupils' progress in higher institutions and reporting back. If the reports are unsatisfactory, it becomes the superintendent's duty to investigate the situation and ascertain the causes. The instructional department may be at fault. Then, distasteful as it may be, the superintendent must set his house in order or face the consequences, for it will be only a matter of time when an aroused public will demand more vigorous leadership in educational policies.

The elimination of pupil failure has long been contemplated as one of the elements of a pedagogical millenium. Much has been written and spoken about the cost of repeaters in school and about the waste of failure. School-board members are about twice as interested in pupil failure as indicated by the rank they give it, and three times as interested, according to the percentage in Table III, as are the superintendents. This is a logical interest on the part of board members, for after all Johnny is sent to school to be taught. If he can't be taught, there must be a reason. The board might want to know how the percentage of pupil failure in their school compares to that in other schools, what special effort is being made to reduce failure, and that pupil failure has been reduced to the minimum.

Superintendents have placed athletic reports ahead of all other activities in Table IV. Board members regard 7 other matters as of more importance. This should be encouraging news to coaches who have striven with such great zeal to win games in the hope that athletic success will bring appreciation. The superintendent who attends to such matters as supervision of buildings and grounds, fire drills, playground problems, and pupil diseases, makes provision for the execution of the duties arising from these activ-

ities, and reports to the board how these duties have been performed comes nearer to the board members' conception of proper emphasis on the activities in Table IV than he who glorifies the success of athletic teams.

Board members rank parent-teacher associations ahead of all other items in Table IV and annual school elections second, while superintendents give a much lower rank to these matters in their written reports. The annual school election is of primary interest to the board members since their retention in office depends upon the reaction of the electorate to their policies. The parent-teacher association is usually an aggressive organization of the elec-

torate; hence, the interest of board members in this group. However, the superintendent is not the person to act as publicity agent for this organization, and the relative ranking assigned them in superintendents' reports indicates a desire on the part of the executive department to attend closely to the business of running the school.

The board members' great interest in playground problems is in harmony with the interest they have shown in all things directly affecting the child's physical and mental welfare. The playground presents an added problem to the child's life—moral welfare. The mental and physical side of the child's life are also affected by conditions existing on the playground. The parents have a right to expect that the child sent to school will have the same amount of intelligent care on the playground as he receives in the classroom.

1. The interest of board members in matters of school administration closely parallels that of the superintendent's.

2. In general the matters given greater emphasis by the board members have to do with financial income and with things affecting pupil welfare.

3. Board members are less interested than the superintendents in budgetary control of expenditures.

Insurance for School Buildings

School boards in New York state, outside of New York City, have been spending approximately \$3,000,000 annually for insuring school buildings. Various means have been suggested to reduce or eliminate this item from an ever-increasing budget.

Mr. Raymond S. Jewett, president of the New York Associated School Boards and Trustees, writing in the Bulletin of the association on the subject of insurance, points out that four general plans have been considered in the past for reducing insurance costs. These include (1) blanket insurance policy applicable to any building in the system, (2) the elimination of insurance altogether, (3) self-insurance by the creation of a sinking fund to replace the more valuable buildings in the system, and (4) a form of state insurance.

The first plan, according to Mr. Jewett, depends upon the willingness on the part of the

insurance companies to issue a policy that would be applicable to more than one building at a premium rate equal to the full rate for the face of the policy, with an added increment for each additional building covered. In the case of the total loss of any building only the value of the building would be payable. The proposal has not met with the approval of the insurance companies because it means a large loss of revenue. Neither is it of any real value to the rural community which may have only one building.

The second plan, which has received consideration as applied to modern buildings of fire-proof construction, does not meet with the approval of school-board members, who fear that they will be criticized in case an uninsured building should be destroyed and the taxpayers called upon to pay for its replacement. Some cities have adopted this plan.

The third plan, self-insurance, has more in its favor, especially in the case of cities. It is unlikely that more than one school building in a school district would be totally destroyed by fire during a five-, or even ten-year period. It would, therefore, seem unnecessary to carry insurance on all buildings and would be perfectly sound policy to accumulate a sinking fund sufficient to replace any building in a city system. The value should, of course, be the value of the building above the foundation.

A serious objection to the plan is the possibility that after a part or all of the sinking fund has been accumulated, a board may, in order to reduce the budget for a particular year, vote to use the fund for other purposes and revert to insuring through the commercial companies.

The fourth plan, state insurance, according to Mr. Jewett, is the one which offers the maximum relief to the taxpayers. It is evident that the advantages of the sinking-fund plan for the individual school district are far greater when extended to the entire state.

In some cases it may be argued that the state should not go into the insurance business, but this is not putting the state in the insurance business. It is a well-established fact that public education is a function of the state, and the state in the case of New York, is contributing about \$113,000,000 per year to aid the local communities for the maintenance of their school systems.

PUBLIC OPINION

The individual opinions are derived from various bits of information or factors at the disposal of the people, such as, facts, news, hearsays and rumors, legends, myths, and what not. Certain elements in the environment and those derived from personal experiences are seized upon. The opinions, sentiments, and common sense of the masses, based upon customs, mores, traditions, laws, dogmas, historical policies of the group furnish the general background. The discontent finds general expression. Controversies and discussions follow. Leaders arise to define the issue or issues, propose solutions, and champion causes. Interest is aroused and people begin to talk. The issue is discussed in papers and established social institutions, private organizations, public agencies, and individuals contribute to the discussion and exert an organizing and unifying influence upon the unorganized mass of related yet somewhat diverse opinions and sentiments. Finally public opinion becomes crystallized and expresses itself through legislation or special leaders or agencies capable of giving expression.

—Dr. Martin H. Neumeyer, University of Southern California



FIELD DAY FOR THE SIX ROCHESTER, MINNESOTA, GRADE SCHOOLS WAS A GALA EVENT AT THE NEW ATHLETIC FIELD. The above view shows the football field, circled by the cinder track, with the steel fence donated by the high school enclosing the entire field. At the right in the background is the field house, given for the use of the high school by Dr. E. Starr Judd.

Community Spirit in Athletics at Rochester, Minn.

G. H. Sanberg, Superintendent of Schools, Rochester, Minn.

A community inspired with unquenchable enthusiasm for outdoor sports and high-school athletics — that is Rochester, Minnesota, a world-famed medical center.

Much has been contributed to the success of athletics in that city, but the crowning accomplishment was the presentation of a \$15,000 field house to the high school by Dr. E. Starr Judd, internationally known surgeon of the Mayo Clinic. Since the fall of 1929 when the high school first claimed interest in the building, the name of Dr. Judd as the donor was withheld at his request.

The field house, built in the style of a modern bungalow, is adjacent to the football field and is fully equipped with all the modern conveniences found in athletic quarters, including a large number of showers and lockers for the athletes. To accommodate the spectators, Dr. Judd also gave several sections of steel bleachers.

The high-school football field is located in the new public recreation park which was a low

marshy tract until 1925. At that time the local post of the American Legion took the initiative in securing this land for use as a community athletic center, dedicating it to the American soldiers of the world war. Through the Legion's efforts and the planning of the city park board, the field was drained and arranged into a golf course, a football field, a cinder track, and a picnic ground.

As their share in making the field a genuine community enterprise, the students of Rochester high school carried on a successful campaign to raise money from their own funds for erecting a canvas-covered steel inclosure for the field and track.

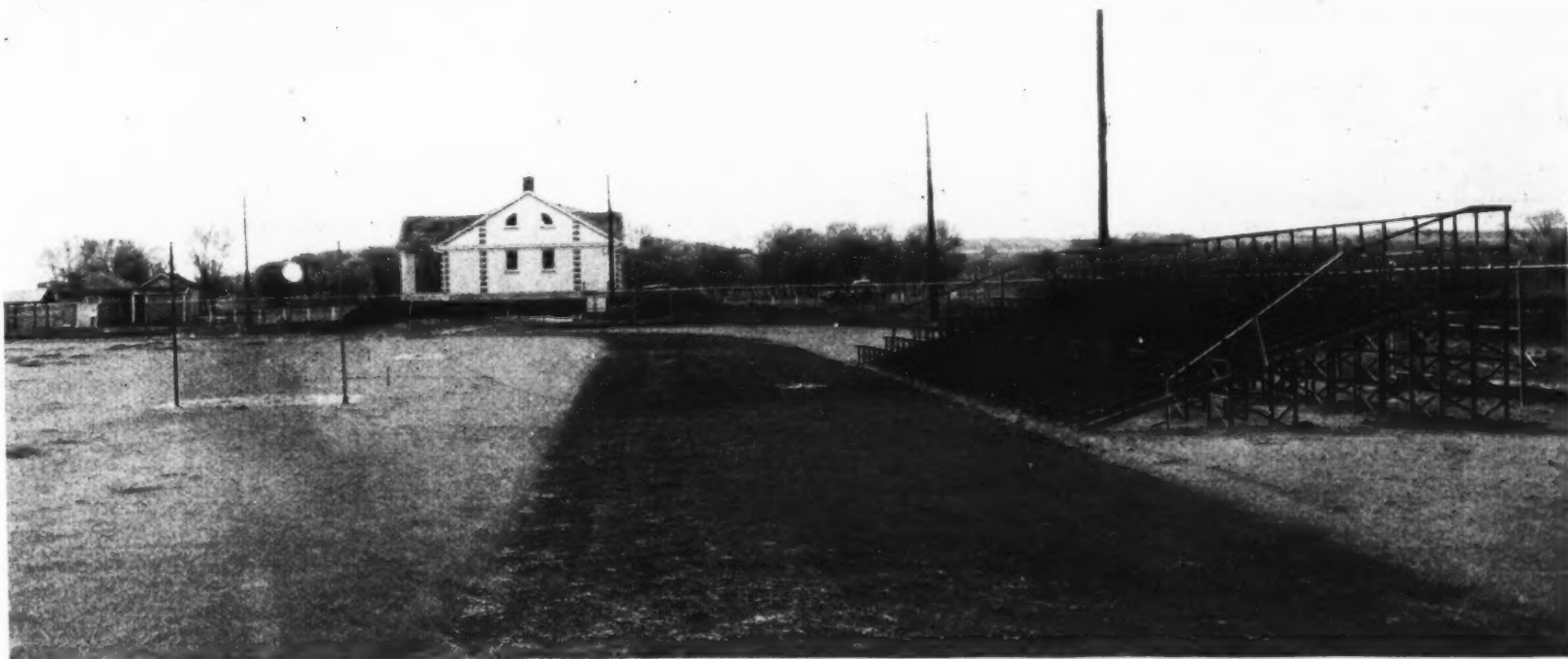
Rochester has expressed its appreciation to all these agencies in contributing to the community enterprise, which is an educational asset in the lives of the citizens and of the youth of the city. But the greatest feeling of appreciation is toward Dr. Judd for his thoughtful generosity in providing such facilities for high-school sports.

As an educational enterprise for the development of high-school sportsmanship, the gift is unexcelled. Rochester high-school athletes now have the advantage of equipment which might well be the envy of larger schools, and the community has an athletic field of which it may well be proud. To express some of the students' appreciation, one issue of the *Rochester*, high-school magazine, was dedicated to Dr. Judd, at that time "the unknown donor" of the field house and bleachers.

Rochester's six public grade schools also share in the possession of Soldiers' field. Every spring a day is set aside for children from all schools to compete in athletic events. The city playground instructor, physical-education directors, and members of the park board officiate at the celebration when ribbons and cups are given to the winners.

Dr. Judd's interest in the high-school affairs is partly due to his own career as a student in the Rochester high school. When Rochester had its

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THE NEW FIELD HOUSE AT SOLDIERS' FIELD, ROCHESTER, MINNESOTA, AND THE STEEL BLEACHERS, A GIFT TO THE CITY AND PUBLIC SCHOOLS FROM DR. E. STARR JUDD

Neglected Phases of Ability Grouping in High School

S. S. Mayo, Director of Research, Sequoia Union High School, Redwood City, California

One of the earliest effective efforts of the schools to recognize different levels of ability was to separate the curriculum into grades and to divide children into grade classes. A refinement of this process has resulted in ability grouping within each grade. Advocates of this more-refined plan of recognizing individual differences claim several advantages for it. Some of them are:

1. It makes possible more rapid pupil progress.
2. It keeps the pupils' interests at a higher level.
3. It economizes effort on the part of both pupil and teacher.
4. It creates more rivalry.
5. It reduces failures.
6. It provides for curriculum enrichment.
7. It provides for the adaptation of teaching methods.

On the other hand, those who are less enthusiastic regarding ability grouping, point to the following:

1. It is a costly procedure.
2. It presents administrative difficulties.
3. It eliminates the contributions of the bright pupils to a heterogeneous group.
4. Pupils in a homogeneous group do not put forth greater effort.
5. Pupils in homogeneous groups do not gain more in subject matter than pupils in heterogeneous groups.
6. Homogeneous grouping does not reduce failures.

In the face of these conflicting opinions we look in vain for convincing scientific evidence. Experiments, it is true, are numerous. Sixty years ago, students of education in the field operated plans for the promotion of selected groups. Since that time many data have been presented, either supporting the plans for ability grouping or showing their faults.

Neglected Phases of Ability Grouping

The experiments in this field, it seems to the writer, place undue emphasis on certain phases of the problem with noticeable exclusion of at least two very important items. The experiments, in general, consist of attempts to answer the question, "Do pupils in homogeneous groups gain more or less, as measured by some form of achievement tests, than pupils in heterogeneous groups?" As indicated by the instruments used to measure the results, this has usually meant gains in the *same kind of subject matter*. It is also noticeable that little emphasis has been placed on any *adaptation of teaching methods* to the various types of groups.

The results of a rather extensive experiment along this line have recently been published.¹ The experiment was designed to answer the following question, "Under normal prevailing conditions, do first-year high-school pupils of the same age, sex, intelligence score, and taught by the same teacher, in English and algebra, gain more as measured by standardized achievement tests and semester marks in homogeneous groups than they do in heterogeneous groups?"²

This experiment is typical of many which have appeared during the last few years. It differs markedly, however, in that it takes into consideration the factors of age and sex and knowledge of the subject at the beginning of the investigation. In the opinion of the writer, it is typical in its neglect of the two important phases previously mentioned; namely, differentiation of subject matter and adaptation of teaching methods.

The Real Question

Grouping probably will not result in maximum benefits if the same material is presented in the same way to each group. The most important phase of the problem is not, "Will an individual gain more information when in a homogeneous group than when in a heterogeneous group?" but, "Will it not be possible to present more suitable material in a more economical and effective way to an individual in a homogeneous group?"

This conception of differentiation points to a more satisfactory instrument of grouping than the intelligence test. A plan, based mainly on the results of a recognized achievement test is more satisfactory. In order to equalize all the factors which might bear on the success of pupils in their work, it is necessary to supplement the information gained by achievement tests with past achievements, teachers' opinions, and the interests and desires of the pupils. To do this it is essential to maintain flexibility of grouping. When individual accomplishments and interests indicate the desirability of shifting pupils from one group to another, the organization should permit such transfers with little difficulty.

A method which applies these principles in practice is in use at the Sequoia Union High School. Briefly described, it is as follows:

The Sequoia Plan

Eighth-grade pupils, within the district are given the Stanford Achievement Tests about four weeks prior to enrollment in the high school. On the basis of the results, pupils are divided into three groups, the E, or high-ability group; the G, or average-ability group; and the F, or low-ability group. Acceleration of about two years or more places a pupil in the E group. Retardation of about two years or more places a pupil in the F group. About 20 per cent of the entire pupil group are in the E division, 61 per cent in the G division, and 19 per cent in the F division. The mean chronological ages by groups are as follows:

E group, 13 years, 8 months
G group, 14 years, 9 months
F group, 15 years, 6 months
The mean educational ages by groups are:
E group, 17 years, 1 month
G group, 15 years, 3 months
F group, 13 years, 2 months

These groups are kept in a flexible condition at all times. Teachers' opinions, pupil accomplishments or failures, and pupil interests and proved aptitudes are determining factors in the matter of transfer from one group to another.

There is differentiation of subject matter, in that certain subjects are given for the benefit of the F group, while certain others are for the E group. Subjects which are common to both groups are made more adaptable, through enrichment or lack of it, to the E group or F group respectively. Considerable stress is laid on adaptation of teaching methods. In the F group, emphasis is put on effort, in the E group individual accomplishments and creative work are developed. Work is now being done in regard to the special needs of the F pupils, and the teachers are urged to realize as near the maximum as possible on the abilities of the E pupils.

Neither the administrative nor the teaching staff feels that this method of grouping is entirely satisfactory in its present stage of development, but its distinct advantages are sufficient to outweigh all undesirable features. It has become, through successful experience, a part of the administrative and instructional apparatus of Sequoia Union High School and promises to continue as such with ever-increas-

ing benefits as changes and improvements are made.

More Experimentation Needed

An experiment should be devised, in which a large number of high-school pupils of various abilities in each class be taught a certain subject, and the results measured objectively. At the same time, other groups, as nearly as possible comparable in everything which affects the learning process, should be taught the same subject in groups of similar achievement ability, and the results measured objectively. Conclusions derived from such an experiment would be scientifically valid and would also indicate whether or not ability grouping actually resulted in increased efficiency in the particular subject selected.

In such an experiment the parts of the subject taught to the different ability groups should be selected on the basis of achievement ability, interests, intelligence, teachers' opinions, and other factors. Teaching methods used should be carefully adapted to each particular group. Fundamental principles of educational psychology should be applied in this differentiation.

Until experiments have been conducted which include differentiation of subject matter and adaptation of teaching methods within the various ability groups, it seems unfair to attempt any scientific conclusions as to the real educational worth of ability grouping. This is obviously true if these two items are accepted as essential elements in grouping. That they should be so accepted is certain when the purpose of ability grouping is analyzed. It is simply a refined means of providing for individual differences, but if subject matter and teaching methods remain the same for all groups, ability grouping is an expensive and inefficient gesture.

MEN TEACHERS IN GRADE SCHOOLS ARE DISAPPEARING

Mr. Frank M. Phillips, chief of the division of statistics of the U. S. Office of Education, in a recent statistical summary of education for 1927-28, shows that while the number of men teachers in the elementary schools is decreasing, the number of men instructors in institutions of higher grade shows an increase. The summary shows that, of the 1,010,232 teachers of all ranks in the country, about 80 per cent are women, the men outnumbering the women only in the colleges. In the high schools, the women outnumber the men two to one.

The survey shows a marked and steady increase in the number and proportion of men teaching in the public schools from 1890 to 1920, a slight rally from 1920 to 1926, and a decline from 1926 to 1928. In 1900 the women elementary teachers outnumbered their masculine coworkers by about two to one, and in 1928 they outnumbered them by eight to one.

Men teachers in the high schools increased in number during the same period, going from 3,648 in 1890 to 68,738 in 1928. The most striking increase in the ranks of these teachers was from 1920 to 1926, when the number almost doubled, from 32,386 to 63,374. In 1928 the number of men employed as high-school teachers was 68,738.

In the colleges, the men instructors outnumber the women by almost three to one. In 1920 the men numbered 21,644, reaching 32,650 in 1926, and 36,783 in 1928. The number of men teachers in the teachers' colleges and normal schools has increased, while in the commercial schools there has been a decided drop in the number employed since 1920.

¹Purdum, T. L., *The Value of Homogeneous Grouping*, Warwick and York, 1929.

²*Ibid.*, p. 31.

A Labeling Plan for Janitor-Supply Products

J. W. McClinton, Executive Secretary, National School Supply Association, Chicago, Illinois

Business leaders, through a national radio hook-up, are broadcasting messages weekly on the "Romance of Business." Merchandising has gradually been finding itself. It has come to evaluate features essentially serviceable. It has been eliminating the superlative from its advertising and substituting tangible evidence of merit instead. It is substituting actual for promised performance.

Industry has discovered that confidence resulting in continued business relations is an asset. Encores in the concert hall reflect the satisfaction of the audience. Repeat engagements of an artist, a lecturer, or an entertainer are evidence that a former appearance was satisfying. Repeat orders bring the same evidence to business from the buyer. The school official rendering a quality service is eagerly sought a second year, a third year, or for an indeterminate service. He is selling a service. Boards of education in contracting with a superintendent, or business manager, buy his ability, his experience, his worth; they do not buy time. General business is attempting to operate on the same plan — likewise the school industry.

Testing for Quality

A project has been initiated in the school industry that should create interest and demand attention from the school purchaser, namely, the certification or labeling of janitor supplies. The purchase of these products by school officials has presented a problem, because of the absence of generally recognized standards for measuring the quality of the product. This condition is caused by the fact that the selling is not based upon poundage or yardage, but upon ingredients. It has not been easy for purchasers to have ready access to ingredient tests for quality.

There has been a like concern with the manufacturers and distributors of the products. The legitimate dealer has to match his statement against the fly-by-night — the transient. His honest claim might have no more sales value than a dishonest claim for quality. There seemed but one way out of the dilemma — have scientific tests support the statements, have labeling tell the story, and serve as a specification basis for purchases, and back of it all, have an impartial organization functioning as a testing and label clearing house. This function the National School Supply Association performs.

Origin of the Plan

There has been evidence of a need for some basis for measuring the quality of the product purchased in this special field of janitor sup-

plies. Many superintendents and purchasing agents have voiced such a sentiment in recent years. Manufacturers and distributors in this line of business have also claimed a need for some regulation of the business, this claim being based upon the experiences of school officials in doing business with representatives temporarily engaged in the selling of these products. It is in this temporary selling group that the evils of selling through misrepresentation have been so much in evidence. The transient salesman has no reputation to protect, has no interest in establishing a good will as an asset, has no interest in repeat orders, so that there is no restraint on overselling a purchaser or unloading on a school system products not essential for the school need, and has no interest save the present sale and the marginal profit as wide as the market will afford. This is a selling program that no legitimate distributor or manufacturer can subscribe to, a type of competition that they will not meet, and a selling program that brings unjust and unfavorable reactions upon a group engaged in ethical merchandising. The program should operate to the protection of both the purchaser and the seller.

Scope of the Labeling Plan

The quality labeling plan will for the time being cover liquid (hand) and scrubbing soaps, deodorants, and disinfectants. Other lines will be included as the program develops.

Manifestly, there must be some uniformity in a project of this kind. It would be impractical to attempt to certify all grades of janitor-supply products. It seemed wise to limit grades or established standards for the different materials, having the standards sufficiently varied and a sufficient number so as to meet general school demands. It is equally important to permit reasonable fluctuations in material tests to make it possible for manufacturers to conscientiously conform to them.

In the liquid (hand) soap three standards were determined. First, a liquid soap with a 15 to 18 per cent soap content, this being accepted as the most desirable and economical for school use. Mindful of the fact that some boards of education still desire a lighter grade of soap and conscious of the fact that there should be a labeling and testing process for those so desiring, a second standard was established — a liquid soap with a 10-12 per cent soap content. Still a third standard to meet school requirements was established — one with a heavy soap content, and to meet this situation a standard with a 38-40 per cent soap content was established. It is the feeling that the recommended standard of 15-18 per cent soap content

with the secondary standards — a light soap with a 10-12 per cent soap content and a heavy soap with a 38-40 per cent soap content, will meet any requirements of boards of education.

Scrubbing soaps present a different problem. There is not the demand for the range of grade that is evidenced in the liquid soap, but to conform to every anticipated school-board requirement, two standards for labeling purposes were established — one a jelly scrubbing soap with a 25-30 per cent soap content, and a standard liquid scrubbing soap with a 15-18 per cent soap content.

Two disinfectants for labeling purposes have been set up — one a pine disinfectant with a phenol coefficient of 3-4, and a coal-tar disinfectant with a phenol coefficient of 5-6, these based upon¹ R. and W. tests.

Two deodorants, one a spray to cope with foul conditions, another in crystalline or other form as a deodorizer, complete the standards for labeling and certification purposes.

It is the feeling that so far as these items are concerned and as the labeling program applies, it covers each item in sufficient variations to render the service intended.

How the Labeling Plan Operates

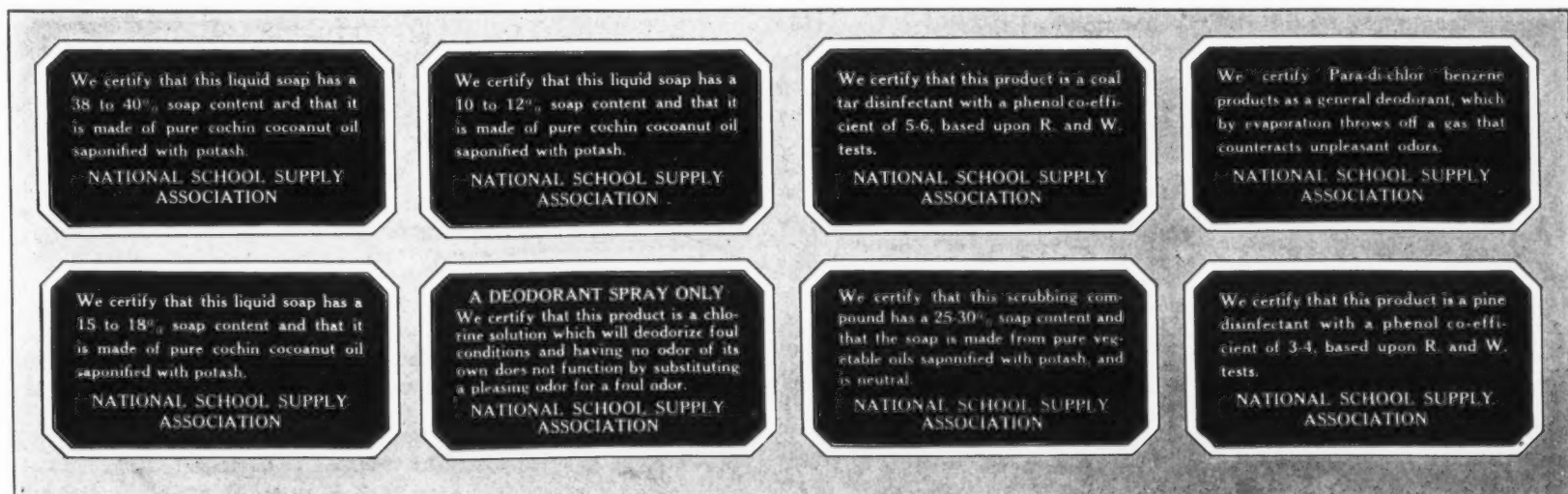
Our manufacturers and distributors may submit samples of the various standard products to association headquarters for certification purposes. These samples are tested through our laboratory contacts and where the samples meet the specifications the companies are privileged to use the certification labels specifying the quality of the product based upon our own laboratory tests. For example, a manufacturer or distributor submits to us a sample of liquid soap which he claims to come within a range of 15-18 per cent soap content, also that it is made of pure cochin coconut oil saponified with potash. If the laboratory tests bear out these contentions, a supply of certification labels covering this 15-18 per cent soap standard is furnished the company. These labels may and should be placed upon all receptacles in which the 15-18 per cent soap is shipped. They are available for use on samples for salesmen's use. The following is the certification label used for this particular standard:

"We certify that this liquid soap has a 15-18 per cent soap content and that it is made of pure cochin coconut oil saponified with potash.

National School Supply Association."

¹The initials R. and W. used in connection with the phenol coefficients of disinfectants signify Rideal-Walker. The coefficients are determined by the Anderson-McClintic modification of the Rideal-Walker method, which is the standard procedure used in the U. S. Public Health Service.

(Continued on Page 140)



NO SCHOOL BOARD NEED SUBMIT TO INFERIOR SOAPS. THE ABOVE LABELS WILL GUARANTEE STANDARDS OF JANITORIAL SUPPLIES

Central Vacuum-Cleaning Systems¹

Prof. H. S. Ganders, University of Syracuse

Vacuum cleaning of floors is efficient because no dust is raised, as is the case where the common floor brush is used on unoled or poorly oiled floors. The vacuum draws dust from cracks if any exist in the floor. It is easier to use the vacuum tool than a brush in out-of-the-way places, such as under radiators, around desk legs, and under bookcases. The vacuum tool does not leave marks as does the brush when lowered to the floor at the beginning of each stroke. The vacuum system saves time and is the most efficient system yet devised for cleaning school buildings.

The Vacuum Cleaner and Time Economy

If time is to be saved, the services of a janitor somewhat more intelligent than the average janitor, one who is capable of learning to use a floor brush must be secured. Inefficiently operated vacuum cleaning requires slightly more rather than less time. The data show, however, that when properly operated, a floor may be cleaned as rapidly as with a dry floor mop, and at a saving of from 15 to 20 per cent of the time required to clean a floor with a brush.

Whether results will be effective, whether time will be saved over other methods, and whether more or less energy will be required, depend largely upon the type of installation and the skill the janitor acquires in operating the vacuum-cleaning system.

The following elements of method procedure in cleaning floors by central vacuum are important in increasing the effectiveness of the work and in reducing the time and effort required:

Good Procedure

1. It is obvious that the tool should cover all floor space, if effective results are to be secured.

2. Much time will be wasted unless the tool is guided over the floor systematically. The furniture, except in special rooms, consists largely of a uniform type of desks and seats. When the best strokes are once discovered, this makes possible their repetition at regular intervals. Useless motions should be eliminated. Strokes under identical pieces of furniture should be of the same length and direction.

3. For most effective results the movement of the tool should be lengthwise of the boards. Even under desks and seats, the movement of the tool can be made nearly lengthwise of the boards.

4. The operator should clean under but one row of desks at a time—the desks to his right if he guides the tool with his right hand. This avoids a continual change in the position of his body and the breakage of the rhythm of his strokes.

5. The operator should clean under the row of desks so that the handle will not pass across in front of his body. The handle before the body is awkward, because the work is not in the direction the operator faces and it greatly restricts body movement. The proper row to clean will depend upon whether the operator is right- or left-handed. The entire apparatus, tool, handle, and hose should be between him and the row of desks and seats under which the work is being done.

6. The elbow joint should always be turned away from the operator. This throws the hose away from the body.

7. Usually cleaning should proceed away from the inlet valve so that the hose will not be in the way of the tool. To move the hose back and forth requires time and breaks the rhythm of movement. It is, therefore, advisable for the operator to carry the apparatus back after having cleaned through an aisle and under desks on one side, and to proceed through the next aisle in a similar manner.

¹The cleaning of school buildings is an important part of the work involved in the care and upkeep of the school plant. The present paper constituted one of the important addresses before the meeting of the National Association of Public-School Business Officials, May 20-23, at New Orleans, La. The material was in large part drawn from "School Building Management," by Reeves and Ganders (Teachers College) and from "The Status of Vacuum Cleaning in Schools," by Winspear (Cincinnati University).

8. Both time and energy will be saved if the hose is kept free from desks and sufficiently slack to avoid resistance to the handle.

9. If the floor is evenly dirty the vacuum tool should be moved at a speedy rate. If this is done, it will be unnecessary to cover the floor more than once.

10. It is unnecessary to press down upon the handle in cleaning floors. Better suction will be secured, and time and energy saved, if the tool is allowed to move along lightly, its own weight alone holding it to the floor.

11. Open spaces, such as corridors or gymnasiums, should be cleaned systematically with back and forth strokes about 5 ft. in length. If the dirt is evenly distributed, progress should be steady. The rate should be the maximum at which all dirt will be removed when the space is covered once. Progress should be away from the inlet valve in both directions. This obviates the necessity for correcting side draft from the hose lying ahead of the cleaner, and of moving the hose which lies on the uncleaned space.

12. In cleaning stairs, strokes should be made lengthwise of the steps. All strokes should be made with a forward movement from the stair wall. The cleaning process should start at the bottom where the hose is attached and proceed to the top.

Special Uses of a Central Vacuum-Cleaning System

The principal work of a central vacuum-cleaning system is probably the cleaning of classroom floors. There are, however, a number of other uses to which it may be put which makes it exceedingly valuable equipment for a school building.

1. Many special rooms, such as home-economics rooms, auditoriums, cafeterias, libraries, etc., have special types of furniture, which increases the difficulty of cleaning the floors. In such rooms there is much less necessity for moving furniture about if a vacuum cleaner is used.

2. By means of a special attachment, the central vacuum-cleaning system may be used to clean boiler tubes. The attachment is a straight iron-tube handle, which may be pushed into the boiler tube for about 4 in., being prevented from going farther by a shoulder which fits tightly against the front of the tube. This method is easier, more rapid, and more effective than scraping and brushing and has some advantages over the steam jet.

3. The central vacuum-cleaning system is an excellent means of keeping furnace and fan rooms clean. It can be used on the furnace and in corners about the furnace and fan, where a brush cannot be inserted.

4. A central vacuum cleaner is an excellent means of cleaning erasers. An attachment, consisting of a metal piece to fit into the inlet valve and having small holes through which the air may pass may be used to protect the erasers, or the end of the hose unattached to the handle may be applied directly to the erasers.

5. The central vacuum cleaner may be used to good advantage in removing dust from chalk trays, ledges, and wainscoting. It is, however, no improvement over a cheesecloth or sanitary duster for the purpose of dusting furniture. The cleaning of floors by vacuum, however, reduces the amount of dust which will settle on furniture, because dust is not stirred up in the process of cleaning. It also reduces the amount of dust to settle on walls and windows.

6. In school buildings there is always a number of carpets in restrooms, rugs in offices, and home-economics rooms, and fiber mats at doors. The custodian with a central vacuum cleaner is at a great advantage here.

Effect of Kinds of Equipment and Installation

Much of the success or failure, of central vacuum-cleaning systems depends upon the kind

of equipment and its proper installation. It is as essential in school buildings, as in hospitals or hotels, that the system should operate with a minimum of noise. It should be capable of moving a sufficient volume of air to clean bare floors and should be installed with attention to convenience as well as effectiveness of cleaning.

Piping. The smallest pipes should not be less than 2 in. in diameter. In large buildings, where there are elbows and considerable lateral piping, a system should be installed which will produce sufficient vacuum for the installation of large mains, depending upon the number of cleaners to be operated at one time, and pipes leading from the inlet valve which are at least $2\frac{1}{4}$ or $2\frac{1}{2}$ in. inside diameter. Much lateral piping demands stronger vacuum. Pipes must be large enough so that matches, short pencils, and bits of paper may readily pass through them to the separator in the basement. Correct installation cannot be done by guess. Account must be taken of the total amount of piping, the amount of lateral piping, and the number of elbow joints. If this is not done it will be found that rooms remote from the separator will receive insufficient vacuum to remove the required volume of air for effectively cleaning bare floors. Engineers must take account of the length and diameter of hose used, for long hose will decrease the vacuum and hose having small diameter, while increasing the force of vacuum, will not permit the removal of a sufficient volume of air to clean bare floors.

Valve Locations and Hoses

Inlet Valves. Valves should be sufficient in number, and properly placed, to facilitate the use of the system. If there are too few valves, or if they are inconveniently placed, it may be impossible to clean some parts of the building by vacuum. The time and labor involved will be increased, and janitors will not want to use the system. For these reasons piping should be installed at the time the building is constructed. It is extremely difficult to properly pipe a completed building.

Inlet valves should open from each classroom and placed at corresponding places in the different rooms, in order that the operator may use identical methods. It is poor economy to reduce the expense by improper piping for vacuum cleaning. With a sufficient number of inlet valves properly placed, shorter hose will be needed. The extra expense for correct piping and placement of the valves over a period of time, will be saved in the lower first and replacement costs of short hose. A shorter hose will also reduce the cost of power necessary for effective work.

For convenience, valves should always be placed in the front or back of a classroom. Because of the arrangement of desks a valve placed in the center of a side wall is inconvenient. A janitor must pull the hose around the front of desks in order to proceed through the aisles.

There should be a sufficient number of inlet valves in corridors, so that the janitor can clean the corridor for the length of the hose by proceeding both ways from the valves. There should be an inlet valve at the foot of each flight of stairs.

The covers of inlet valves should fit tightly to prevent suction when the system is not in use. It should be possible to securely fasten the hose to the inlet valve. Nothing is more exasperating when the operator is cleaning at the opposite end of the room, than to have the hose pull loose from the inlet valve.

The Hose. It is probably advisable to use a

(Continued on Page 142)

The Future School District

Prof. Fred Engelhardt, University of Minnesota

There are those who view with great concern the economic changes which are so rapidly transforming the methods of doing business, and which are being reflected in marked modifications in social thinking and behavior. Improved transportation facilities have revolutionized commodity distribution and the invention of new machinery has reduced the need for labor and has made noticeable shifts in the demands for human services and the kinds of occupation available.

Every step forward which makes for efficient and economical production and distribution tends to concentrate under a more centralized control the management of many and diverse human enterprises. Towns and cities grow and prosper to the extent to which they can be made a part of a more effective organization, for manufacturing, for distribution, and for financing the material needs of life.

Consolidation and Transportation in Business

Whatever one's attitude may be toward the chain stores, or the chain or branch bank, the new order will survive. Its gradual acceptance will have a conspicuous influence on the small city and town. As a whole, the small towns, except those in strategic centers, are losing many of their earlier economic functions, and in spite of the fact that the small community has many social advantages, it cannot survive without the former.

Highways bring the open country and the city into juxtaposition. Modern inventions tend to destroy that isolation which created those distinctive traits which have differentiated the farmer from the town folk. Investigations made today, no doubt would reveal greater social differences among the groups living in various sections of certain large cities than could be found between the typical farmer and his city cousin. A 10-mile distance, a quarter of a century ago, involved hours and possible hardships, while today it is a distance of minutes, traveled in safety and comfort. Small town and city merchants are increasingly noting that through improved transportation much of their former business is drifting to the larger city 100 or more miles away.

As a case in point, the history of the small-town bank during the past decade is indeed a lamentable story. The record of failure in this basic institution was a high price to pay for demonstrating the inefficiency of small, independent, and poorly managed enterprises. Recent testimony presented before the House Banking and Currency Committee shows that in nine years, 5,640 banks had failed and that not less than 7,265,000 depositors were affected by the failures. The causes are not attributable to the war alone, for the process continues. Of these defunct banks eighty per cent had been operating in small towns.¹ The same story would be revealed by the small schools, if their balance sheets would present the facts.

Influence of Economics Changes on School Administration

One may ask the question, "How is educational administration reacting to these changes, and how will school-district organization in the various states be effected thereby?" Public enterprises are much slower to respond to economic progress than are private undertakings. Financial losses are not so readily measurable in a business like that of the public school, and hence, tradition and prejudice are uprooted more slowly and with greater difficulty. In time,

the developments which are occurring now in the business world will have a profound influence on education, and governmental operations. In fact, a study of present conditions will show that their impelling action is already operating; whether advantageously or adversely, available evidence is insufficient to justify an answer. Facts and occurrences which are brought so vividly into the lives of the people in the transformations taking place in the business world will soon be carried over into their thinking in reference to the schools. In this regard, students of education must be prepared to direct the action and the thought of the people into those channels which will be best for public education.

The Subdivision of States for School-Administration Purposes

In but a few states are the administrative subdivisions created for school purposes, such as to permit an efficient, economical, or effective local school organization. City school systems exist like those of New York and Chicago, in which the educational problems are more complicated, and in which the school populations are greater than are found in a large number of states. In these cities, a highly coordinated school organization is effective and the administration of all the schools is centrally operated. In many states with less complicated problems, it will be observed that the schools are managed through many small and loosely joined, independent incorporated units.

The complications arising in endeavoring to administer as a unit an extended public-school system, as large as those which comprise the greatest cities, has been pointed out by Counts.² While as early as 1844, Samuel Young, one of New York state's noted commissioners of education, called attention in his annual reports, to the small and consequently inefficient corporate school districts, and stated then that they: "have for a long time been a source of many formidable evils."³

City Planning and School Districts

There is ample evidence to show that large cities are assigning experts to the study of the problems which are confronting the metropolitan area of which they form a part.⁴ Coöperative development of highways, sewer systems, water systems, and park systems are being projected in many localities. Each of these activities requires centralized administration and planning, as well as the pooling of expenditures and resources. In most of these associated enterprises, the schools are not included.⁵ It takes a much longer time to effect coöperation in these matters pertaining to the education of children than it does in reference to material things.

The development of the metropolitan areas

²G. S. Counts, *School and Society in Chicago*, Harcourt, Brace and Company, 1928, Chap. 14.

³T. E. Finegan, *The Township System*, Albany, New York: State Department of Education, 1921, p. 9.

⁴N. L. Engelhardt and Fred Engelhardt, *School-Building Program Planning*, Bureau of Publications, Teachers College, Columbia University, on press.

⁵A. G. Yawbeig and Others, *Save \$2,000,000 on Better Schools in Cuyahoga County*, County Board of Education, Cleveland, Ohio, 1924.

surrounding the larger cities is bringing to the surface many problems which concern the public schools. Within commuting radius of the large cities the middle-class and the well-to-do element of the population establish residential areas independent of the city, and are able to develop superior school facilities in the particular suburbs in which they reside. In other sections, however, the suburban communities cannot maintain first-class schools except through exorbitant tax payments, since the assessable property consists largely in the valuations made of the modest homes constructed in these districts. In either case, a large increment of the populace which produces the wealth in the city and which normally represents the highest type of citizenship, live outside of the city and have little direct interest in the city schools. The extent to which schools within metropolitan areas shall continue as a group of independently administered units is an important problem for future solution. At the present time, there are examples like the cities of New York, Philadelphia, Denver, Los Angeles, and San Francisco in which the municipality and county are one and the same subdivision of the state, insofar as the schools are concerned.

Progress has been made in some states in developing a highly centralized county-school unit. Yet, in many states, which are classed among the county type of school-district organization, the administrative machinery and the interlocking of districts within the county is such as to result in excessive overhead, duplication of effort, deplorable economic waste, and inefficient schools.

Consolidation a Slow Process

Legislation of the last three decades, which was enacted to encourage consolidation of schools, has not effectively solved the problem. The depressed economic status of the agricultural activities, no doubt, has been a determinant influence on the progress which has been made in the schools in the open country. One may await passing out of the one-room school with the one-man farm. In most of the states are to be found large numbers (Table I) of school districts which operate one-room schools, small elementary and small high schools.

TABLE I. Estimated Number of Incorporated Small School Districts in a Selected Group of States

State*	Number of Small Districts
California.....	2,700
Michigan.....	6,200
Minnesota.....	7,500
New York.....	6,200
Pennsylvania.....	2,300

*Estimated from data presented in the annual reports of the commissioners of education in these states.

Even though the number of small corporate school districts in any one state remains relatively unchanged, the proportion of the total school population which resides in the small districts has been decreasing rapidly. For example, (Table II) in the state of Minnesota, the number of common-school districts decreased from 97.7 per cent of the total in 1887, to 93.6 per cent in 1927, while the percentage of the school population residing in these districts in the same years decreased from 70.5 per cent to 35.3 per cent.

TABLE II. Change in the Number of School Districts in Minnesota, 1887-1927

Year*	Common School Districts		Town and City School Districts		Unorganized Territory School Districts		Total Districts	Total School Population
	A	B	A	B	A	B		
1927.....	93.6%	35.3%	6.3%	63.0%	0.2%	1.7%	7,810	549,041
1907.....	94.4	56.6	3.6	42.9	0.0**	0.5	7,700	428,979
1887.....	97.7	70.5	2.3	29.4	0.0	0.0	5,247	250,585

*E. B. Berquist, *Evolution of Local School Units in Minnesota*, University of Minnesota Library, 1929, p. 36.

**Less than one half of one per cent.

A. Per cent of total number of districts.

B. Per cent of total school population.

¹The Wall Street Journal, March 1, 1930.

Kinds of School Districts

There are a large variety of corporate school districts provided in the laws of the states of the Union. These districts may be grouped (Table III) into fifteen different classes, yet, in any one of which, the size in land areas, or in school population, and the nature of the authority may place them on scales of wide range of differences. For example, city school systems include New York City and municipalities in western states which boast of 500 residents.

TABLE III. Various Classes of Incorporated School Districts in the Several States of the Union, 1929

Type of School District*	Number of States
Consolidated.....	46
Common Rural.....	45
Independent (including incorporated municipalities).....	41
Joint.....	25
County (incorporated).....	22
Union High School.....	16
Special Charter.....	15
Township.....	10
High School.....	9
Special.....	9
County High School.....	8
Town.....	6
Township High School.....	4
Union Graded.....	4
Non-High School.....	2

*L. O. Johnson, *Corporate and Other Subdivisions of the States for School Purposes*, University of Minnesota Library, 1929.

The Larger School District

There are those who hold that the small school districts of the open country should be united into county units. This may be the logical and expedient step to take. It must be recognized that the county is not geographically, economically, nor administratively the most desirable subdivision of a state for school purposes. In some states, the county is a true political subdivision, while in others, the county plays but a small part in the lives of the people. The subdivisions of the state by counties does not provide for an equitable distribution of taxable wealth, and the same inequalities will result in the county school districts as now exist. In spite of these apparent basic weaknesses of the county school system, it may be desirable to advocate the county system as the most logical political move, and as a step in advance in developing a more acceptable administrative unit for school purposes.

The county unit, as a subdivision of the state for administrative purposes, cannot survive as the ultimate subdivision of a state for school administration. A study of the history of the county and the map of any state will present ample reasons for the statement. The ultimate school districts of a state will be those which result after a careful study of all the factors involved. The ultimate local school systems will not be necessarily cities, townships, towns or counties, and the political subdivisions will not determine the local corporate school systems.

Practically every state in the Union has land areas comprising the whole or part of counties which produce hardly sufficient wealth to support the population resident thereon.⁶ There are counties in these states in which the contributions from state funds to roads and schools is greater than the wealth which is locally produced. It would be more economical to the people of the state and better for the children residing in these areas, if residence in these sections were prohibited, and if the land was allowed to grow wild for fishing, hunting, and recreation. The great state and national forest preserves and parks represent steps in that direction. To determine how a state may be subdivided for the support and administration of efficient and economical local schools within its borders will require a number of years of careful experimental study and public enlightenment.

School District Basic to Progress

The proper determination of what shall constitute a desirable subdivision of the state for

⁶H. G. Clark, *The Effect of Population Upon the Ability to Support Education*, Research Bulletin, School of Education, Indiana University, 2:1, 1925.

the administration of local public schools is closely related to the solution of many vexing educational problems. Many aspects of school-work can be developed progressively only as the desirable unit is created. Until then, much of the projected theories and administrative practices must be adaptations to existing conditions which, under the circumstances, will be basically modified whenever the school district unit is changed. Among those important factors of school administration, which await the findings of scientific study for the determination of the ultimate school-district unit, are the following:

The type of lay control of school affairs.
The distribution of the burden for public-school support.
The location of school buildings.
The supply and demand of teachers.
The training of teachers, administrators, and supervisors.
The relationship between school subdivisions of the state and the political subdivisions.
The relationship of the state and its local subdivisions.
The organization for the administration of the schools in the subdivisions of the state.

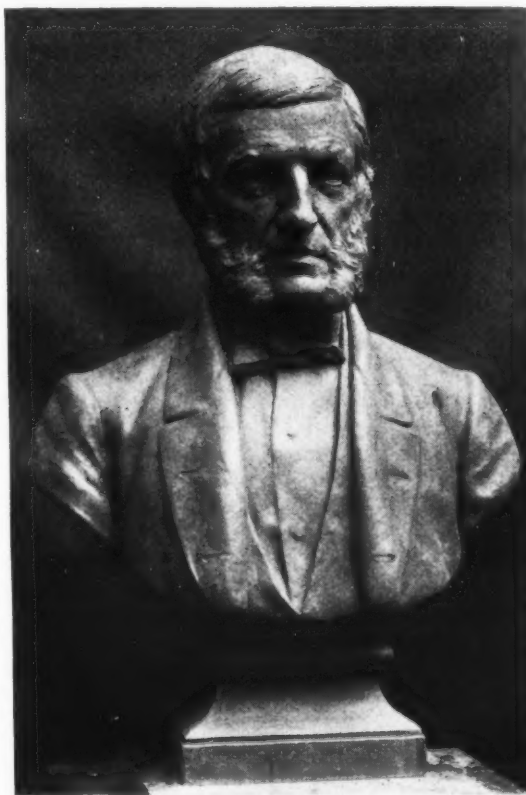
School-Building Maintenance

The Valuable Policies of the Highland Park, Mich., Public Schools

The school board of Highland Park, Mich., enjoys the services of a relatively new school plant. The city has grown enormously in the last two decades and practically all of its school buildings are not less than ten years old. Under the direction of Mr. H. C. Daley, assistant superintendent of schools in charge of business affairs, a carefully considered policy of maintenance of the school plant has been established and is being carried out. The board of education annually appropriates a fixed sum to be used for building maintenance. In 1930, this sum amounts to \$49,000.

In describing the maintenance service in Highland Park, Mr. Daley recently wrote:

It is the policy of the board of education to have a large proportion of its maintenance work done by workmen on the regular payrolls, rather than by outside contractors. Quite a corps of repairmen are kept busy all the year round; there are carpenters, painters, a locksmith, a plumber and pipe fitter, a glazier, a plasterer and window-shade maker, a roofer, and one or two common laborers. Most of these men are handy at more than one kind of work. Whenever work is slack in one line they are able to do efficiently necessary labor of another trade. When extra help is needed, the regular maintenance men are often found to be very efficient foremen. It is believed that net costs are considerably lessened by the pursuit of this policy.



GEORGE BANCROFT
By Rudolph Evans

Nine busts of prominent American leaders were unveiled in the New York University Hall of Fame on May 8. It is notable that three of these great Americans were educators: Bancroft, the historian, illustrated above; Motley, the historian, and Mann, the school administrator.

Work is supposed to be performed by the mechanics only on direct orders from the maintenance foreman who, in turn, takes orders from the assistant superintendent in charge of business. The latter officer, as representative of the superintendent of schools, receives requisitions from the principals and makes any required contact with the board of education or the building and property committee of the board. "Checks and double checks" are an essential factor of the system. If a teacher has knowledge of repairs needed within her realm, she is expected to report that fact to the principal or to his clerk, rather than to other school officials, to the workmen or to the neighbors. A requisition is then made out in quadruplicate by the principal's clerk. One copy is kept by the principal. The others are sent to the business manager for approval. A coupon is detached and immediately returned to the principal showing the disposal of the request. One copy is kept in the business office, one in the files of the maintenance foreman, and one goes to the mechanic who is to perform the work who retains his copy until he has completed the task described. Then this copy, marked completed, is handed back to the foreman; thence, it is returned to the business office where a record of completion is made. It is then returned to the principal who issued it. A permanent record of the request and the disposal made of it is thus filed in the three places of easiest access to the parties most concerned. The system of filing is such that questions concerning repairs can be quickly settled by reference to the original requisitions. About 2,000 requisitions make this round trip annually. Some of them are for very insignificant items. Many are rather heavily freighted. One may ask merely for the repair of a broken chair round while the next one may involve half a dozen trades and require weeks to complete.

There is no preventive for much of the deterioration that takes place in school buildings. The city's smoke and grime is bound to blacken the walls and make redecoration imperative at the end of each three of four years, or at the rate of about 135 classrooms per annum. Even natural stone steps wear away in time and make replacement necessary. Rain, hail, snow, and frost finally work their way through the staunchest roofing materials. By pure accident and without fault of pupils or teachers, window-panes are oftentimes broken and window shades come to an untimely end.

In Mr. Daley's experience, no small saving would be effective in the maintenance of the Highland Park school building if carelessness and viciousness could be even partially eliminated. Much of the workmen's time is spent upon the repair of locks and hinges that have been mistreated and of furniture that bears mute evidence of violent handling. Newly decorated walls, much beyond necessity, often bear the imprint of dirty hands, damp clothing, and even of muddy shoes. Strong pieces of oak furniture are sometimes shattered as if by lightning. During the year 1929, more than 450 window-

(Continued on Page 140)

Published Opinion on School Ventilation

Part I. General Discussion

V. T. Smith, Bureau of Educational Research, University of Illinois Historical Survey

It was formerly believed that the most important function of ventilation was the dilution of the carbon-dioxide content of the air. Later, it was believed that *fresh* air was needed to lessen the danger from the poisonous organic effluvia found in air that had been breathed. An excellent account of the evolution of the science of ventilation is found in an article by West,¹ in which he reviews the recent major investigations and gives the names of the leading students of the subject from Leblanc in 1842, and Claude Bernard in 1857, to Flugge in 1905, from Vernon and Leonard Hill, to such men as Winslow, Willard, and Hallett.

In an article written a year later than that by West, Dr. Winslow² adds further historical information, and explains the formula by which the 30 c.f.m. idea was originally determined. The explanation is that, since an average individual produces .6 cubic feet of CO₂ per hour, and normal outdoor air contains .003 parts of carbon dioxide, then we can compute the amount of fresh air which must be brought in (assuming .006 parts CO₂ as desirable) by the formula

$$\frac{.6}{.006 - .003} = x \text{ which gives } 2000 \text{ c.f.h. or approximately } 30 \text{ c.f.m.}$$

He also gives a table showing 31 of the 48 states requiring that amount of air per minute. He says that the assumption that .0006 parts of CO₂ is desirable is a mistake. The "dead hand" to which he refers is this "outworn hygienic theory." He says that "the ideal in ventilation is a supply of a small amount of cool fresh air." In support of this he cites the studies of the New York State Ventilation Commission, in which it was found that window-ventilated rooms, with an average temperature of 66.5 deg., had 18 per cent less absence from respiratory sickness and 70 per cent less sickness at school than in fan-ventilated rooms, with 68.5 deg. average temperature, and 30 c.f.m. of air.³ In view of these figures he concludes that "there is left no rational basis whatever for the 30 cu. ft. per minute standard." Instead it is "positively harmful to the health of school children."

Legislation

An excellent statement concerning the legislation pertaining to circulation is to be found in Professor Winslow's article⁴ referred to above. He gives a table of all the states showing which states have no legislation and which have general and special legislation. He also indicates whether the provisions are statutory, whether they are regulations of educational authorities, or rulings by health authorities, industrial commissions or departments of public safety. In 20 states the specific requirement is for 30 c.f.m. In Ohio, there must be 6 changes per hour which amounts to the same thing. In Wisconsin, the requirement is 2 cu. ft. per minute per square foot of floor space per person, which amounts to over 30 c.f.m. In all, in spite of various exceptions more than half of the states require the traditional 30 c.f.m. However, it should be remembered that these laws are not in all cases universally effective in the states in question. And yet those

who do not believe in the 30 c.f.m. method are clamoring for a change of legislation in this respect. Another article by Winslow⁵ included a proposed statute suggested by the New York State Commission for enactment in the various states. It makes provisions for window ventilation and leaves out the 30 c.f.m. requirement which necessitates mechanical systems. Another good treatment of the legal status of school ventilation in the various states is to be found in the McLure⁶ dissertation.

Most authorities agree today that the 30 c.f.m. standard is wasteful and perhaps even injurious to the pupils in causing needless drafts. In 1924 J. N. McCall was quoted by Holmes⁷ as saying that in order to provide 30 c.f.m. in the Detroit schools 75 out of every 100 tons of coal went for ventilation and only 25 tons for heating. Hallett⁸ says that in St. Louis 90 per cent of the air can be reconditioned after use. He says that ventilation in that city is not expensive, and that the argument of cheapness in favor of window ventilation is destroyed. Schmidt⁹ says that 30 c.f.m. is not necessary and states that under certain conditions, the Wisconsin code permits a 50-per-cent return of the air. Walter Keiser,¹⁰ a St. Louis ventilating engineer, says that the 90-per-cent recirculated air of the St. Louis schools carries no odors and effects tremendous fuel savings. Herbert N. Morse,¹¹ in a report before the New Jersey Council of Education, spoke favorably of the St. Louis ventilation system which he said he had visited and carefully inspected.

Ideas on Ventilation Accepted at Present

Although there does not appear to be any adequately thoughtout philosophy back of the present practices and ideas concerning ventilation, yet it is generally indicated in the literature that health is taken to be the fundamental consideration. It is on this assumption that the New York Commission and other agencies have recently made such elaborate studies of the effects of ventilation on respiratory illness. The other criteria which are most often mentioned and in the descending order of their importance are mental effectiveness, comfort, ease of administration, and low cost. Mental effectiveness seems to have been definitely ruled out as a criterion by the studies of Thorndike¹² and others who reported that, under conditions likely to be encountered under schoolroom conditions, temperature and humidity have little effect on mental ability or vigor. It is, however, still believed that physical comfort is conducive to better mental performance by the prevention of distraction which must occur in the case of physical distress. On this subject Sandeford¹³ says in a recent book that, "These distressing

conditions are uncomfortable, and if we subject children to them, the likelihood is that their attention will be distracted from the work. At present, therefore, we shall be wise to make schoolroom conditions as comfortable as possible for the pupils, and especially should we pay attention to the circulation and movement of the air."

Operation and Cost

In the list of standards for judging the quality of ventilation, ease of administration and low cost were placed last, because they are not to be considered until health and mental efficiency have been safeguarded. They should not even be permitted to cloud the issue. Commissioner Dempsey,¹⁴ of Vermont, states this very well when he says, "When neither teacher nor pupil can work efficiently and comfortably, nobody gets full value for the money expended and for the children the loss is permanent." But, if it is found that one method of ventilation is just equal to some other method in its effect on the bodies and minds of the pupils, then the elements of administration and expense may be considered. If the difficulty of operation causes the janitor to fail to operate it successfully, either through negligence or ignorance, then a simpler system would probably be more suitable unless it is advisable to employ a more capable or willing janitor. If the teacher is required to look after the heating and ventilation and, in the urgency of other duties, forgets this added responsibility, it is possible that someone may be injured by extreme heat or cold, or by drafts, or may be distracted from his school work by disagreeable odors. If, on the other hand, the teacher becomes so concerned with the details of looking after thermometers and windows and radiators that the regular teaching function is interfered with, the child may not receive the instruction which the teacher would otherwise give. Smithson,¹⁵ in an article discussing ventilation costs, says, "Approximately 80 per cent of the cost of operating schools goes for teachers' salaries. Less than 16 per cent goes for fuel, light, and janitors' wages . . . when the time that adjustment of windows and regulation of heat requires . . . is charged for at teaching rates, . . . it will be apparent that mechanical ventilation, automatically controlled, is the least expensive." He also gives tables showing that in Creston, Iowa, in different buildings using central fan, univent, gravity indirect, and window ventilation, the gravity indirect actually used more tons of coal per room, while the fan system used the same as the window system. But, even if it be found that the absolute expense involved in an effective particular system was higher than in an ineffective one, still there would be little doubt which we should choose if we find a definite relation existing between ventilation and health. Dr. Rush,¹⁶ in his address before the 32nd semiannual meeting of the American Society of Heating and Ventilating Engineers, said that ". . . Respiratory diseases are far more costly to the community than the ventilating system would be." This is beyond humanitarian considerations which, of course, should receive first consideration. In a recent discussion of the entire air-conditioning problem, West¹⁷ makes this point very clear. He

¹West, Perry, "The Modern Trend in the Science of Ventilation," AMERICAN SCHOOL BOARD JOURNAL, 69:51-52, November, 1924.

²Winslow, C. E. A., "The Dead Hand in School Ventilation," AMERICAN SCHOOL BOARD JOURNAL, 70:45-46, June 1925.

³It is worthy of note, however, that in this same article Dr. Winslow suggests that one remedy would be to reduce the speed of the fans. Neither here nor anywhere else does he recommend window ventilation as a complete remedy for the troubles of ventilation.

⁴Winslow, C. E. A., *op. cit.*, p. 45.

⁵Winslow, C. E. A., "School Ventilation Laws," AMERICAN SCHOOL BOARD JOURNAL, 75:118, August, 1927.

⁶McLure, J. R., "The Ventilation of School Buildings, a study of present Practices and Costs in the Light of Experimental Research," *Teachers College Contribution to Education* No. 157, New York: Teachers College, Columbia University, 1924. 130 pp. (pp. 123-30 is bibliography).

⁷Holmes, W. S., "Notes on Schoolroom Ventilation," AMERICAN SCHOOL BOARD JOURNAL, 68:59-60, 125, April, 1924.

⁸Hallett, E. S., "Mechanical versus Window Ventilation," AMERICAN SCHOOL BOARD JOURNAL, 67:46-7, 99-100, August, 1923.

⁹Schmidt, H. W., "Air Conditioning in the Wisconsin Schools," *Illustrated in Heating and Ventilating Magazine*, 25:58-60, November, 1928.

¹⁰Keiser, W., "Reducing Small Town School Ventilating Costs," AMERICAN SCHOOL BOARD JOURNAL, 68:49-51, March, 1924.

¹¹Morse, H. N., "The Ventilation of School Buildings," AMERICAN SCHOOL BOARD JOURNAL, 73:44, 136, 139, December, 1926.

¹²Thorndike, E. L. and McCall, W. A. and Chapman, J. C., "Ventilation in Relation to Mental Work," *Columbia University Contributions to Education*, No. 78, New York: Teachers College, Columbia University, 1916, 83 pp.

¹³Sandeford, Peter, *Educational Psychology*, New York: Longmans, Green and Company, 1928, pp. 271-2.

¹⁴Dempsey, C. H., "Schoolhouse Ventilation," *Journal of Education*, 107:411-12, April 2, 1928.

¹⁵Smithson, John, "What is the Dead Hand in School Ventilation?" AMERICAN SCHOOL BOARD JOURNAL, 71:92,96, November, 1925.

¹⁶Rush, J. E., "Ventilating School Buildings," AMERICAN SCHOOL BOARD JOURNAL, 73:50, July, 1926.

¹⁷West, Perry, "Controlled Indoor Atmosphere; High Lights of Its Development," *Heating-Piping*, 1:649-53, December, 1929.

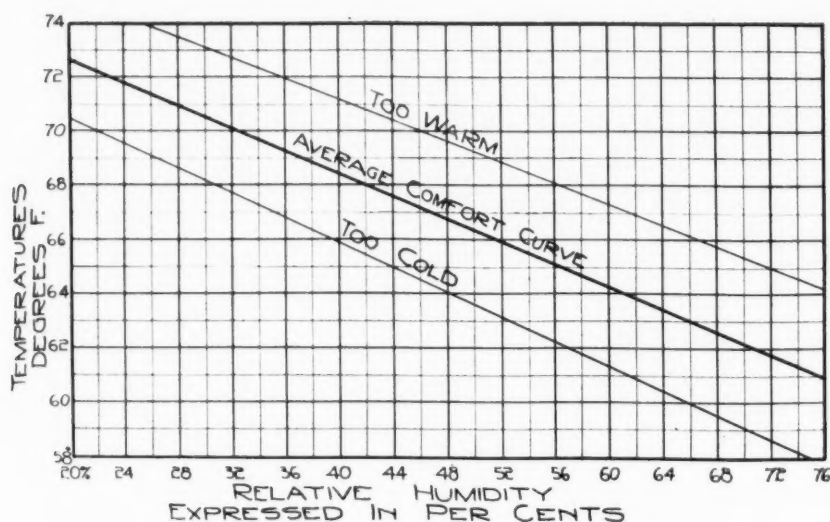


FIG. 1. THE SCHOOLROOM COMFORT CHART
This chart makes clear the relation of temperature and humidity in determining the "zone of comfort" in schools. See text.

says, "The conditioning of indoor atmosphere was originally based upon the comfort and health of human beings from a purely humanitarian standpoint. This is undoubtedly the noble plane upon which it should be pitched and the one on which it will eventually rest."

One of the common complaints against the mechanical systems of ventilation is that the janitor fails to operate them properly. This is particularly true of the "split" system, in which the room is heated partly by direct radiation and only indirectly for purposes of ventilation. A typical statement is that made by Schmidt¹⁸ that "... janitors run them low (the fans) to save fuel and to make up the heat loss by direct radiation." In an article as recent as last March, Ingels,¹⁹ a research engineer of the New York Commission, explained that the reason the mechanical systems were under fire was because they were not properly supervised. He says that frequently janitors do not use the mechanical system or at the lowest speed possible. Janitors who do use it usually set the room thermostats to please the teachers; run the fans as recommended in preliminary tests, guess at what point to set the duct thermostats, slow down fans, or set up the duct thermostat if the teachers complain of draft. Ingels urges that janitors receive better operating instructions.

Physical Qualities Important

One of the statements most frequently encountered in recent literature on the subject of ventilation is that physical, instead of chemical, characteristics of the air are the matters most worthy of consideration. In an article in the *AMERICAN SCHOOL BOARD JOURNAL* in 1924, Holmes²⁰ said: "Carbon-dioxide content has little to do with its fitness for breathing. The important factors are air movement, humidity, and temperature." To these three qualities, other writers frequently add cleanness and freedom from odors. But, since these physical conditions have been declared to be unrelated, in any significant degree, with both health and mental effectiveness, it appears that their chief function lies in the promotion of comfort. Aside from that mysterious health-giving quality attributed by the proponents of window ventilation to air that blows in directly from out-of-doors, the chief function of ventilation seems to be to produce a comfortable "sensible" temperature. But, sensible temperature depends on all of the first three qualities mentioned, temperature (thermometer), relative humidity, and air motion. It depends on the rate at which the body loses heat. This, in turn, may roughly be

said to vary directly with the speed of the air motion and inversely with the thermometer temperature and relative humidity. The formula, if sensible heat is s , temperature is t , relative humidity is rh , and rate is r , might look something like this:

$$s = t + rh - r$$

that is, any increase in r must be compensated by increasing t , or rh . This makes t and rh compensate for each other and shows why it is necessary to have higher temperature with faster air motion if rh is constant. Figure 1 gives a graphic picture of the results obtained by asking a large number of high-school freshmen for their comfort reactions with different temperatures and different amounts of relative humidity. It is to be seen from their figure that with only 20 per cent of relative humidity 72 deg. temperature is necessary for comfort, whereas with 72 per cent relative humidity one is comfortable at 62 deg. temperature and too warm at 65 deg. In other words, other things being equal, a person may be too cool for comfort at 70 deg. with very low relative humidity, and too warm for comfort at 65 deg. with very high relative humidity. This is all figured on the basis of light work and low speed (20 ft. m.) air motion. In his investigations of the effects of air motion on sensible temperature Yagloglou²¹ came to the conclusion that the first 100 ft. of air motion produces a reduction in the sensible temperature of about 3.3 deg. F., for the next 100 ft. 1.7 deg. F., for the third 100 ft. 1.5 deg. F., and 1 deg. F. for each 100 ft. thereafter. This means that, at the rate of 200 ft. per minute, which is usual for mechanically ventilated systems, the temperature would need to be increased 4 deg. F. above the reading at 20 ft. per minute.

It has been held that there is an optimum temperature and humidity for physical and mental effectiveness. Two very complete early studies of the physical, as well as mental, effects of temperature and humidity were given by Burnam²² in 1919 and until recently his conclusions had not been seriously questioned. He reviewed and summarized a great number of investigations and recommended 70 deg. of temperature²³ and 50 per cent relative humidity.

In 1922, Howett²⁴ explained to the Chicago teachers the physiological basis for heating and

ventilating. He explained that the body requires a change of 20 cu. ft. of air per hour to supply sufficient oxygen, but that the 30 c.f.m. is 90 times this amount. He showed that the heat given off by an ordinary adult is 450 B.t.u. or about as much as ... from 2 sq. ft. of radiator surface. "This," he said, "must be dissipated as fast as generated for health. 3 per cent is used in warming the air in the lungs, and 7 per cent in evaporating moisture in air passages and lung tissues. Normally, most of the remaining 90 per cent must be taken care of by evaporation on the surface of the skin. This makes air motion necessary." In speaking of the importance of relative humidity he said: "Outdoor air at 20 deg. with 50 per cent relative humidity (6 g.c.f.), when raised to 70 deg., will still have its 6 g.c.f., but its r.h. falls to 10 per cent." It has been found that air completely saturated with humidity at 35 deg. will contain about 45 or 50 per cent r.h. at 68 deg. or 70 deg. This is the procedure that is followed in the mechanically washed and conditioned air. By means of automatic thermostat controls the air is first raised or reduced to 35 deg., then washed by being forced against wet surfaces, then filled with fine mist which raises its humidity to 100 per cent. It is then heated to the desired temperature and carried to the rooms by fans.

Dust and Odors

Another claim made for the mechanical systems is that the dust washed from the air is often the carrier for disease germs, and that washed air is, therefore, less likely to spread certain contagious diseases, as well as to destroy the disagreeable odors in used air, or in "fresh" air in certain locations where outside air contains such odors. In 1913, Winslow²⁵ said that "insofar as suspended dust and bacteria are concerned, the air in the New York City schools is in a satisfactory condition, without any special measures of protection such as ozone, disinfection, or air-washing." But this is not the common idea of other school-ventilation authorities. Kimball²⁶ in his report of the early studies of the New York Commission said that window ventilation is not to be used in dusty streets, nor in neighborhoods with bad odors.

Types of Ventilation Systems

The ventilation systems now in use may be generally divided into mechanical or fan systems, and "natural" or gravity systems. The gravity systems may have direct heat only, that is, with radiators or registers in the room. In this case, they may consist of window ventilation, usually with the windows over the radiators; or of fresh-air vents in outside walls opening through radiators. Either of these systems may, or may not, have exhaust ducts which may, or may not, be provided with fans. There may be a third type of gravity system called the "split," in which the heat is partly direct and partly indirect. The fan system may be as above, direct, indirect, or "split." It may be the single duct, double duct, vacuum system only, hot-blast system only, combination hot blast and vacuum, or it may consist of unit heaters and ventilators in each room or for groups of rooms. Numerous combinations of these systems are in use. Any of these may be automatically controlled by thermostats, or controlled by hand. An excellent description of the equipment used in 1923 for mechanical ventilation was given by Eddy²⁷ in the *AMERICAN SCHOOL BOARD JOURNAL* in February, 1923.

¹⁸Schmidt, H. W., "Some Aspects of Heating and Ventilating School Buildings," *AMERICAN SCHOOL BOARD JOURNAL*, 75:41, 42, 152, August, 1927.

¹⁹Ingels, M., "Why Mechanical Ventilation is Under Fire," *Heating and Ventilating*, 26:62-64, March, 1929.

²⁰Holmes, W. S., "Notes on Schoolroom Ventilation," *AMERICAN SCHOOL BOARD JOURNAL*, 68:59-60, 125, April, 1924.

²¹Yagloglou, C. P., "Cooling Effect on Human Beings Produced by Various Air Velocities," *Journal of the American Heating and Ventilating Engineers Society*, p. 169, February, 1924.

²²Burnam, W. H., "The Optimum Humidity for Mental Work," *Pedagogical Seminary*, 26:310-28, December, 1919.

²³"The Optimum Temperature for Mental Work," *Pedagogical Seminary*, 24:29, March, 1917.

²⁴Howett, John, "Temperature and Humidity in Our Classrooms," *Chicago Schools Journal*, 4:282-88, April, 1922.

²⁵Winslow, C. E. A., (a report of a study of the ventilation of the New York City schools), *American Journal of Public Health*, 3: No. 2, 1913.

²⁶Kimball, D. D., "What the New York Commission on Ventilation Did and Why," *AMERICAN SCHOOL BOARD JOURNAL*, 67:47-48, 109, 113-14, August, 1923.

²⁷Eddy, C. A., "Meeting Today's School Needs with Mechanical Ventilation," *AMERICAN SCHOOL BOARD JOURNAL*, 66:68-70, February, 1923.

The Fundamentals of Pupil Cost Accounting

Important Recommendations of the Special Committee on Accounting of the N.A.P.S.B.O.

The Basic Considerations

The Scientifically Designed System. It is necessary in any large business, public or private, to devise an accounting method that will meet the requirements of the particular business. Oftentimes effective control requires a very elaborate system. After its adoption, the success of the system will depend largely upon the coöperation of the department heads. The most scientifically designed accounting system cannot be successfully operated unless it is properly supported, and the data essential to its conduct are forthcoming in accurate and consistent form. Good systems have been known to fail, but such failures rarely result from any fault of the system as designed. A scientifically designed system, like a scientifically constructed machine, will do its work if properly conducted.

Importance of Accurate Costs. The importance of ascertaining accurate per-pupil costs cannot be overestimated. Many public-school systems make a practice of figuring costs arbitrarily. The few cost records which are kept are independent of the general bookkeeping systems and are mere memoranda consisting largely of guesses. It is never known how true any guess on costs is, because the truth of the contributing factors is never known. Such methods are entirely obsolete, inefficient, and have no place in modern school administration. It is axiomatic that financial statistics, as costs worthy of reliance, must be in accordance with or tie-up to the General Controlling Accounts.

Controlling and Subsidiary Accounts. Any account appearing in the General Ledger is termed a Controlling Account, if it is supported or presented in more complete or detailed form in some subsidiary account or book. Any record which supports in detail a Controlling Account in the General Ledger is a Subsidiary Account.

Requirements of a Cost System. A cost system for a public-school system should enable the members of the board of education and the taxpayers of the community to ascertain, at the close of the financial period, the actual cost of conducting the several activities of the school system and the per pupil cost in the several kinds and classes of schools.

Terminology Accounting. The standardization of school-accounting terminology is necessary in order that terms used in all reports of school expenditures may be unmistakably understood to mean something definite and fixed. If accountancy is to take its place as a science in publishing data concerning the several school systems, its terminology must be agreed upon by the parties responsible for the preparation of the financial statistics. In no other way can school accounting attain the accuracy and precision that any real science must possess.

Through only such an international association as the National Association of Public-School Business Officials, which professes to coöperate with the several school systems throughout the United States and Canada, that a number of terms may be definitely interpreted for the guidance of all officials responsible for the preparation of data relative to school costs. On disputed terms no formal action should be taken until their use has become more fully determined.

Purposes of Municipal Accounting

Accounts. Accounts are systematic statements of financial facts of identical or opposite character, so arranged as readily to provide summaries of the same.

Accounting. Accounting is the art of analyzing, classifying, recording, summarizing, and interpreting facts relative to the acquisition,

The first concern of the National Association of Public-School Business Officials and its finest work has been the betterment of school accounting. During its convention in New Orleans, May 19-23, the Association accepted a series of research reports on important phases of financial and pupil accounting, which may be expected to have far-reaching influence in raising standards of practice and in solving many of the confusing and most difficult problems of municipal accounting as applied to schools. In the columns below will be found the high points of the report prepared by Mr. R. L. Daly, auditor of the St. Louis, Mo., Board of Education, who acted as chairman of the committee and who guided its deliberations.

Because of their extreme importance to school boards and school executives, abstracts of the reports by other members of the committee will appear in later issues of the JOURNAL. — *The Editor.*

production, transfer, and ownership of articles of wealth or value. Its function or purpose is readily to provide, from accounts of a business, accurate and complete statements of the financial results of its operation for any given period and of its financial state or condition at any given time, and to furnish all other information which accounts can supply for its systematic and successful administration.

Municipal Accounting. Municipal accounting is the application or adaption of the general principles and methods of accounting to the administrative requirements of cities. Municipal accounting differs from private accounting with reference to the subjects concerning which it provides detailed information, the chief difference being:

1. Those which are caused by the special limitations placed upon the administrative action of municipal executive officers by the terms of appropriation acts and other legislation, and

2. Those which are caused by the different purposes for which municipalities are maintained and private enterprises are operated.

In establishing an accounting system, there should be kept in mind the fundamental necessity for obtaining the proper combination of accuracy, thoroughness, permanency, elasticity, and dispatch. The result desired for the system is a maximum of usable and helpful information with a minimum of cost.

The records should be assigned to meet current needs and to allow for expansion in the future. Methods should be as simple as possible, and yet the accounts should be analytical enough to give complete and comprehensive information promptly. The system should provide for a logical distribution of work and for a proper classification of receipts and expenditures which shall be accurate and reliable.

It should provide for complete and lasting records which should be maintained at the smallest possible expense. A great deal depends on the proper classification of accounts. The work should be so divided that the details may move forward largely without interruption or too much dependence on other departments.

All those things should be taken into consideration so that the system shall produce all the results desired, and shall, in addition, contribute to the efficiency of the system as a whole.

Purposes of School Accounting

In conclusion, the purposes of standard school accounting are:

1. Original records for all financial transactions within the school system.
2. The accurate accounting for all school property and other purposes.
3. The accurate accounting for all funds appropriated for school purposes.
4. The accurate determination of costs for all forms of education, for each kind of school, for each character of expense, and for each object of expense.
5. True comparisons of costs within the school system for the same periods and with previous similar periods.
6. The detection of efficiency and inefficiency of service rendered.
7. When a sufficient number of cities make use of the system, the determination of a standard unit costs of education.

Classification and Arrangement of Accounts

The preliminary step in determining pupil costs consists in the classification and arrangement of accounts. The accounts should be arranged in the following order:

Kind and Sources of Income

1. **Revenue Receipts.** Report as revenue receipts all receipts which do not result in increasing school indebtedness or in the depletion of school property. All revenue receipts should be net.

2. **Non-Revenue Receipts.** Non-revenue receipts should include all amounts obtained from loans and bond sales and from the sale of property and supplies. All such receipts either incur indebtedness, which must be paid at some future date, or result in decreasing the amount and value of the school property. All non-revenue receipts should be net.

3. **State Moneys.** State moneys include all school revenue paid into the state treasury and distributed therefrom on a different basis from that on which it was collected. The city school district usually receives an amount greater or less than the amount paid by the city to the state. Include all money used for paying the salaries and expenses of the state department, whether derived from school funds or general funds.

4. **County Moneys.** Include all school revenue raised by the county, which is turned over to the schools for the support of the local schools. Include all money used for paying salaries and expenses of the county-school administration, whether derived from school funds or general county funds. In states having the county unit of taxation, all moneys received from county sources should be reported in the column for county moneys.

5. **Township, District, and Municipal Moneys.** Include all moneys collected directly for school purposes or accruing to the school system from the city, township, district, or town (town is used here in the sense of a school district, not a village or small city) in which the school is located or of which the school forms a part.

Analysis of Receipts

1. **Income from permanent funds.** This item includes all income from permanent invested funds given in the item, "Principal of Permanent School Funds," exclusive of invested moneys designed to meet future bond obligations. The interest accruing from invested sinking funds should be reported under "Other Revenue Receipts." It is important that income from invested permanent county funds be reported under "County." Guaranteed "Interest" on permanent funds which no longer exist should be reported as income from taxation, which is its true source.

2. **Income from leases of school lands.** Include only the income from school lands which have been set apart for the partial support of the school system. Do not include temporary rents from lots reserved for city schools, as such income should be reported under "Other Revenue Receipts."

3. **General, specific, and emergency appropriations.** This item includes appropriations distributed annually by the state or county on some per-capita basis for school purposes; moneys appropriated by the state or county for some specific

purpose, such as vocational education, high-school aid, teacher training, education of the handicapped, etc.; and any moneys appropriated from any political unit to meet emergencies, such as appropriations from the state to supplement teachers' salaries, or from the general city treasury to increase the money available for municipal school purposes. Include all appropriations from state or county general funds for the state or county school administration.

4. *From taxation (property, business, poll taxes, etc.) for all school purposes, including debt obligations.* All moneys raised by state school and county school taxation which are transferred to the local school funds should be included here. Include all moneys raised by local (i.e., township, district, or city) taxation on personal property or real estate, on public and private utilities, from business taxes and from poll taxes, for school maintenance purposes only. Include here all moneys raised for meeting debt obligations, such as the accumulation of a sinking fund, the payment of interest on bonded indebtedness, and interest on short-term loans. *Specific school taxes* should be carefully distinguished from *appropriations* which may be allotted for school purposes but which have not been specifically collected as school taxes.

5. *Federal reimbursement for vocational education in public high schools.* Under this item report the amount of reimbursements received from the Federal Government for supervision and instruction under the Smith-Hughes Act. Federal aid for vocational teacher-training or for civilian vocational rehabilitation should not be included.

6. *All other revenue receipts.* Include all fines and penalties, all gifts (except from educational foundations), bequests, and contributions to the schools, all receipts from the rent of school buildings and lots reserved for school buildings (not school lands in the sense of a permanent investment), all interest on bank deposits and invested sinking funds, and all tuition fees paid by school patrons (not tuition money transferred from one district or city to another, which should be reported under the item for "Transfers from one District to Another").

This item should include any excess in the selling price of textbooks and supplies to pupils to other persons over the cost. It should include also the profit accruing from lunchrooms carried on with school funds. Net admission receipts from public entertainments should also be included.

7. *Receipts from loans and bond sales.* Include all receipts from bond sales negotiated during the fiscal year but do not report new bonds which were issued to redeem old bonds. Include also all short-term loans which were not paid during the fiscal year. It may sometimes be necessary to borrow money to maintain the schools until taxes are collected. The short-term loans, the payment of which does not carry over into the next fiscal year, should not be reported.

8. *Receipts from sales of property and proceeds of insurance adjustments.* Include all moneys received from the sale of school buildings and grounds, sale of library books, furniture, scientific apparatus, automobiles, trucks, machinery, fuel, or other property belonging to the school system. Include also the proceeds of insurance adjustments. Receipts from the sale of textbooks purchased during the school year are duplicates and should not be included.

9. *Cash balance on hand.* Include balances from both revenue and non-revenue receipts.

10. *Transfers of funds from other school districts for tuition.* This item includes all school moneys transferred from one local school unit to another. It will generally include only tuition money (not tuition from patrons), but may include also money received from another school unit for various purposes. It is very important that transfer money be separated from other receipts.

Miscellaneous Statistics

1. *Permanent school funds.* Include the principal of all permanent common-school funds which are invested and of which the interest only is available for use for school purposes. (Do not include university and agricultural-college funds.) In case the principal of a fund granted for common-school purposes has been expended or lost and the state or other civil division has obligated itself to pay interest thereon perpetually by public appropriations or otherwise, such principal should not be included, as it does not exist as a permanent fund and the

source of the guaranteed income is taxes, not interest.

2. *Unsold school lands.* Include all unsold lands granted for common-school purposes, whether or not such unsold lands are currently productive of school revenue.

Fundamental Expenditure Accounts

1. *General control or administration.* General control or administration shall be defined as that group of activities which deals with (1) the carrying out of policies that provide physical, financial, and educational conditions under which pupil, teacher, principal, and supervisor may work to best advantage; (2) the provision of channels through which the course of study, general data, and instructions may be quickly and effectively placed in operation; (3) the provision of channels through which information and conditions in the schools may be promptly transmitted to the central offices; (4) putting into operation standards of achievement; (5) the preparation of general data and reports; (6) research activities; (7) general publicity. These are usually the duties of the superintendent and his assistants.

2. *Instruction.* Instruction shall be defined as that group of activities concerned directly with teaching or aiding in the teaching of children, or improving the quality of teaching. These are the activities of the supervisor, principal, and teacher. Superintendents of small school systems who are called principals should be reported under *general control*.

3. *Operation of plant.* Operation of plant has to do with keeping the school plant open and ready for use, cleaning, heating, and lighting, providing water, power, and any other service.

4. *Maintenance of plant.* Maintenance of plant has to do with all repairs and replacements necessary to keep the school plant in its original condition. All improvements and additions belong under "Capital Outlays."

5. *Auxiliary agencies and coördinate activities.* Auxiliary agencies are activities which, although not a part of regular instruction, are closely connected with the school, such as public libraries under the school board, transportation of pupils, school lunchroom, etc. Coördinate activities are those activities which are carried on by the board of education in addition to instruction in the schools, such as medical inspection and health work, enforcement of the compulsory-education law, and vocational guidance, placement, and follow-up work. In large school systems auxiliary agencies and coördinate activities should be carried as separate accounts.

6. *Fixed Charges.* Fixed charges are charges which recur with some regularity, such as rent for buildings or apparatus, premiums on insurance, payments to retirement or pension funds, annual contributions, memberships, etc.

7. *Capital outlays.* Capital outlays are all expenditures which increase the value of the school plant, such as additions of any kind to grounds, buildings, or equipment which are not replacements of broken or worn-out material. Alterations which increase the value of the property should be reported here.

8. *Debt service.* Debt service covers all payments which actually reduce the debt on the school property or pay the interest charges thereon or build up a fund from which interest and principal are paid.

Analysis of Expenditures

1. *Educational administration superintendents and their offices.* Under this head should be included superintendents, assistant or deputy superintendents, superintendents of small school systems who are called principals and are the administrative heads of these systems, office assistants, clerks, and stenographers connected with their offices.

2. *Business administration, school boards, and business offices.* Under this head should be included all full-time secretaries, treasurers, or paid members of school boards; officials in charge of construction and maintenance of physical properties, such as superintendents of buildings, school architects, inspectors of buildings, superintendent of repairs and schoolhouse commission; superintendents of supplies, business managers, or other officers whose duties are concerned with the purchase and distribution of supplies, and office assistants, clerks, and stenographers connected with their offices.

3. *Other administrative officers and employees.* Under this head should be included persons who

are in the central office exercising direct control of field workers doing health work in the schools, enforcing the compulsory attendance laws, taking the school census, conducting research or in charge of vocational guidance or placement or issuing working permits, and all other administrative officers in the central office whose duties are largely administrative and who are not primarily supervisors of instruction. All office assistants, clerks, and stenographers connected with these offices should be included here.

4. *Supervisors.* Include under supervisors those persons who give half or more than half their time to the supervision of instruction in special subjects and grades, such as supervisors of manual training, home economics, music, drawing, etc., and supervisors of kindergartens, elementary grades, etc. *Supervisors who give more than half their time to teaching should be reported as teachers.* In case supervisors divide their time between two types of schools, as elementary and secondary schools, prorate these supervisors according to the portion of their time given to each type of school. If no adequate prorating is possible, count supervisors under organization to which major part of time is given and note other organizations to which time is devoted.

5. *Principals.* Include principals of groups and districts and principals of building or similar units, such as principals of high schools, elementary schools, vocational schools, etc., who devote half or more than half of their time to administration and supervision of instruction. *Principals who devote more than half of their time to teaching should be included as teachers.* In case principals divide their time between two types of schools, as elementary and secondary, prorate these principals according to the portion of their time given to each type of school. A principal who is really a superintendent in charge of the administration of a small school system should be reported under general control personnel.

6. *Teachers.* All persons who teach more than half time.

7. *Number of teaching positions.* This is the number of teaching positions making up the organization of the school or the number of persons that would be required to fill all teaching positions in the schools of a school system at one and the same time and is usually less than the number of different teachers employed during the year. In case a position has been held part of the year by a man and part of the year by a woman, count the one by whom the position was filled the greater part of the year. *Positions of supervisors and principals should be included under teaching positions when the occupants of such devote more than half their time to classroom instruction.* In such cases these officers should not be reported as supervisors and principals. This item is of importance in determining the average salaries paid to teachers during the year. In case teachers divide their time between two types of schools, such as junior high and senior high schools, prorate these teachers between the two types of schools according to the portion of their time devoted to each type.

8. *Pupils enrolled.* This includes the total number of boys and girls whose names are on the school registers, counting each name but once. If pupils move or are transferred during the year from one school to another, they should be counted as enrolled only by the school first attended that year, and not by any school subsequently attended that school year.

9. *Aggregate attendance.* This is the sum of all the days actually attended by all the pupils in all the schools during the entire school year. In some schools the attendance of pupils, because of congestion or for other reasons, may be limited to half-day sessions only. In such schools, count each pupil present as being present for a full day. (This does not refer to part-time or continuation schools.) This is an item of great importance, and should be secured accurately for each type of school indicated. Days on which schools were closed for any purpose whatever should not be included in ascertaining the aggregate attendance.

10. *Average daily attendance.* The average number of pupils actually present each day the schools were in session should be computed as follows: For a single school, add together the number of days each pupil was present during the year (in schools in which pupils are limited to half-day

(Continued on Page 146)



THE DEWITT CLINTON HIGH SCHOOL, BOROUGH OF THE BRONX, NEW YORK CITY
Wm. H. Gompert, Architect, New York City
Photographs by Courtesy of Mr. Walter D. Martin, Architect for the Board of Education



LIBRARY, THE DEWITT CLINTON HIGH SCHOOL, BOROUGH OF THE BRONX, NEW YORK CITY
Wm. H. Gompert, Architect, New York City

The DeWitt Clinton High School, New York City

William H. Gompert

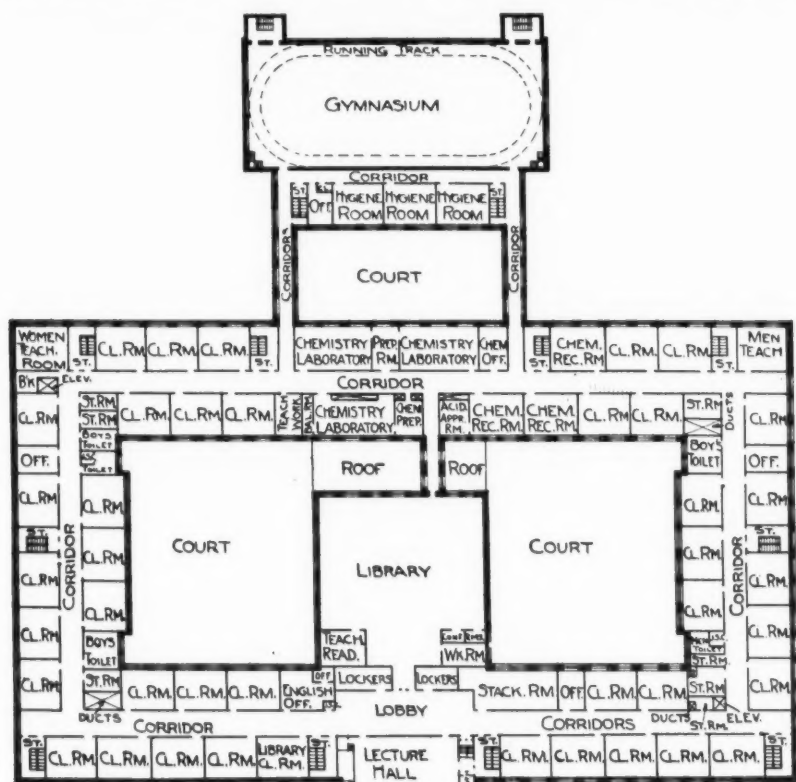
In social and public life, it is position that counts. In the erection of a building, it is location that is the paramount consideration. In the case of the DeWitt Clinton High School, New York City, a site was developed which can very well be used as a horrible example of how not to proceed in selecting the site for a high school.

In the selection of a site for a high school, the safe practice for a school board or a school superintendent to follow, is to retain an architect and to depend on this expert's judgment and advice in determining the location of the school. But, it must be admitted that, if the City of New York had not previously owned

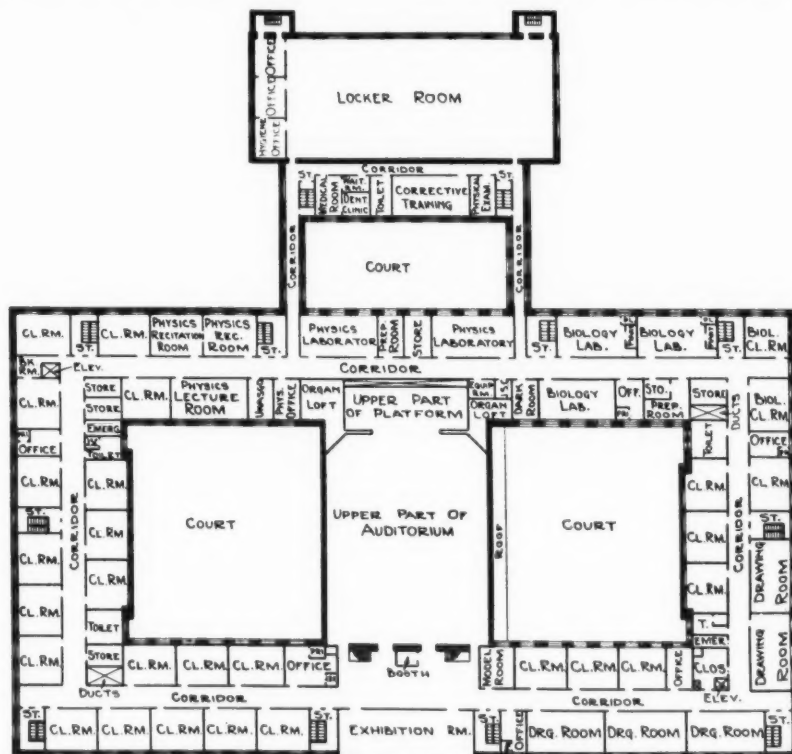
the property on which it was planned to erect the DeWitt Clinton High School, it would have been difficult to obtain the approval of the site by any architect of recognized standing. On the contrary, those who do not believe in first selecting the architect, but think any old site can be selected and the architect should do the rest, can properly point to the high school as proof that any site, without regard to the physical disadvantages, can be made into an attractive and proper school site. To gain an idea of the hopelessness of the site upon which this building was built, picture a barren tract of land of 28 acres in area, irregular in its dimensions and resembling a large shell-torn battle area, gen-

erally about 30 ft. deep below the contiguous land and roads, and littered with large rock, riprap, and debris. This deserted land which the city had owned for many years, was an abandoned reservoir site, and when the board of education desired to erect a new building for the DeWitt Clinton High School, city officials designated this tract.

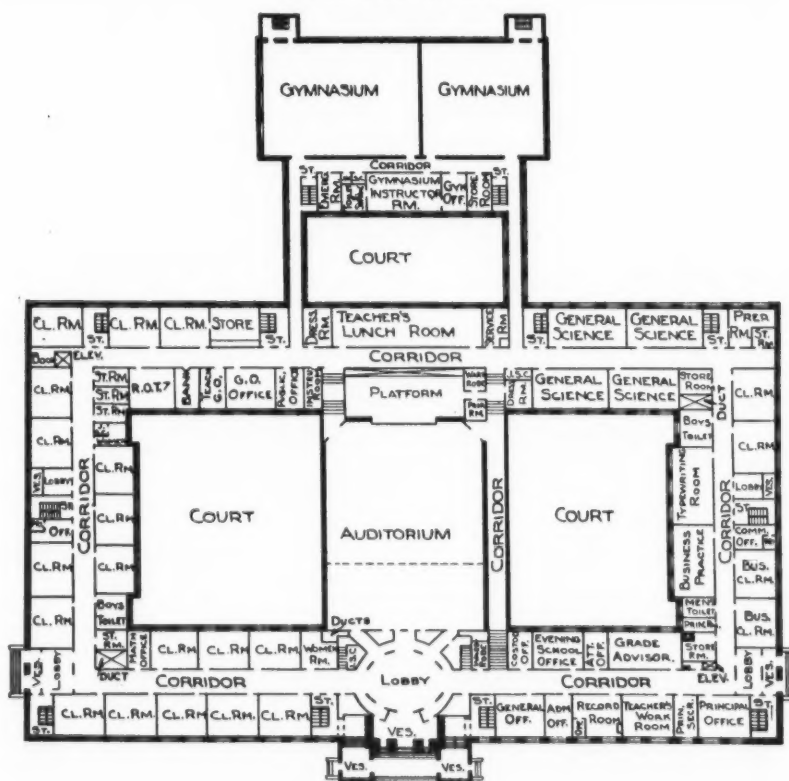
With the determination of frontiersmen and the dexterity of skilled designers, the architect and his staff approached the problem, and the picture of the completed school is an entirely different one. The building has been built on deep foundations to reach the old reservoir bottom. The portion of the site not covered by the structure itself, or not assigned to the athletic field, was filled in for a depth of 30 ft., and graded up to harmonize with the established levels of the surrounding streets. The finished result makes it possible to stand on the entrance steps of the building and view what will be a fine boulevard 300 ft. in width, with a city park



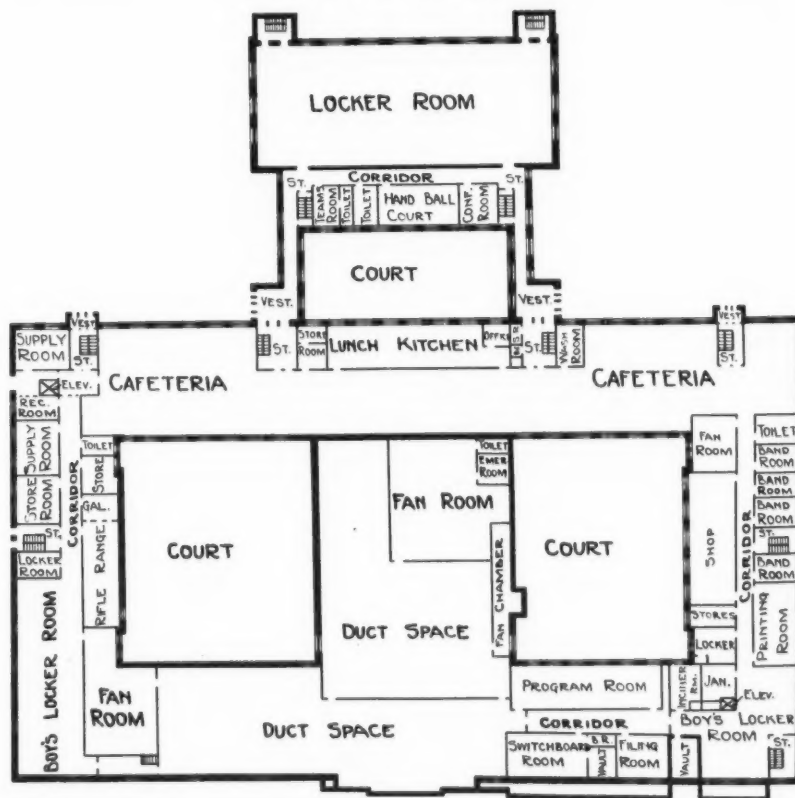
THIRD FLOOR PLAN



SECOND FLOOR PLAN



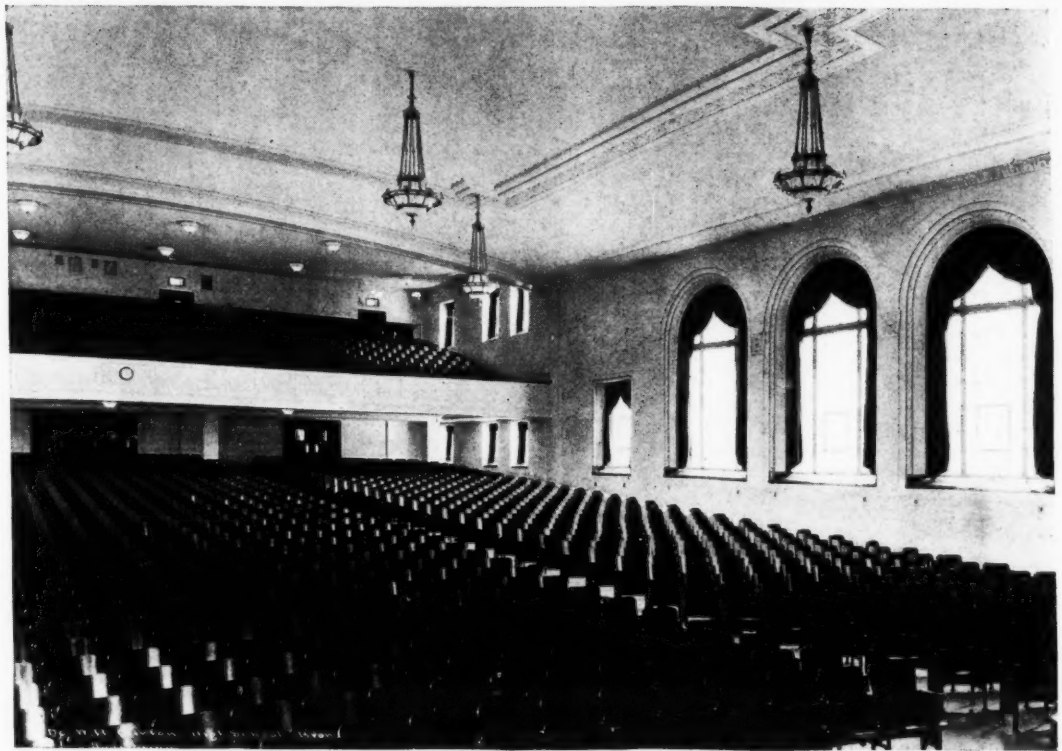
FIRST FLOOR PLAN
FLOOR PLANS OF THE DEWITT CLINTON HIGH SCHOOL, BOROUGH OF THE BRONX, NEW YORK CITY
William H. Gompert, Architect, New York City



BASEMENT FLOOR PLAN

on the opposite side. From the terraces at the rear of the building, a wide open view is obtained of the lower part of the city, and in the distance is seen the great new suspension bridge being erected over the Hudson river. At the front and sides, beautifully landscaped terraces and approaches have been built. These with the monumental building, make an outstanding contribution to the municipal architecture of the city.

The exterior design of the building is an adaptation of the Lombardy style of architecture. The central motif, comprising the main entrance and the side portals, and the tower on the axis of the main entrance, have been constructed with a granite base, French limestone trim, marble inserts, and buff-brick wall surfaces. The balance of the building which flanks the central motif, has been constructed with a granite base, terra-cotta trim, and buff-brick wall surfaces, laid in a decorative pattern. The terra cotta in a slight yellowish tone matches the tone and texture of the French limestone. The structure which is fireproof throughout, has been built in the form of a hollow rectangle, with the auditorium in the center. On account of the huge size of the structure, this shape has been found to be best adapted to efficient circulation and administration.



AUDITORIUM, DeWITT CLINTON HIGH SCHOOL, BOROUGH OF THE BRONX, NEW YORK CITY
Wm. H. Gompert, Architect, New York City
Photographs by Courtesy of Mr. W. D. Martin, Architect of the Board of Education



LOBBY, DeWITT CLINTON HIGH SCHOOL, BOROUGH OF THE BRONX, NEW YORK CITY
Wm. H. Gompert, Architect, New York City

The building is one of the largest, if not the largest, high school in the world. It accommodates 5,700 pupils in 86 regular and 110 special classrooms, and offices, exclusive of the auditorium, the gymnasium, and the cafeterias. The entrance foyer is elliptical in shape, with Botticino marble finish on the walls and columns, and marble terrazzo floor, laid in geometric design, with brass inserts and variation of color in marble aggregate.

The auditorium, with a seating capacity of 2,000 persons, has been designed in a modified Lombardy style, with ornamental plaster architraves at the windows and the proscenium opening. The ceiling, slightly domed and paneled, has been formed with acoustical plaster, giving a unique and pleasing effect.

The principal's office and the library have been given architectural treatment harmonizing with the general style of the building.

The gymnasiums have maple flooring 1 in. in width, and the walls from the floor to the ceiling are lined with salt-glazed brick in a pleasing yellow tone. The toilet rooms which have tiled floors and walls, present a neat and sanitary appearance. The classrooms and the balance of the building have been given simple treatment,

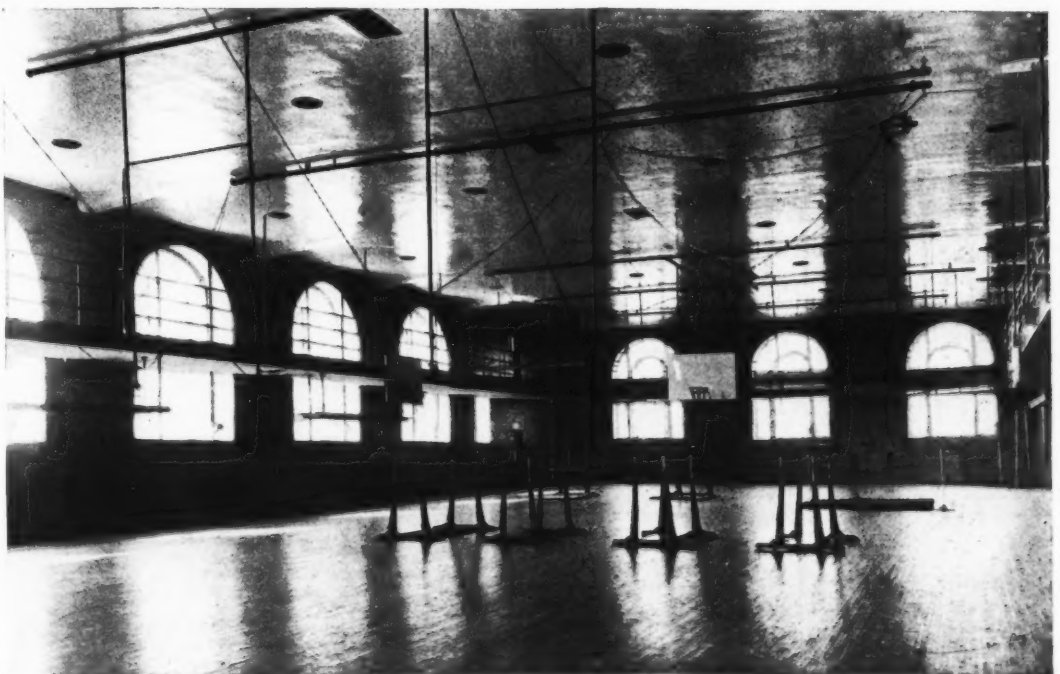
with selective materials tending to low maintenance upkeep.

The building is heated by four 375-horsepower, water-tube boilers, operated by natural or forced draught, and controlled by automatic temperature regulation. The auditorium, the library, the lecture rooms, the gymnasiums, the natatorium, and the teachers' and pupils' cafeterias are heated by the plenum system of indirect radiation, and ventilated by an individual exhaust system. The balance of the building is heated by a vacuum steam system, with direct heating and ventilating units in the respective rooms.

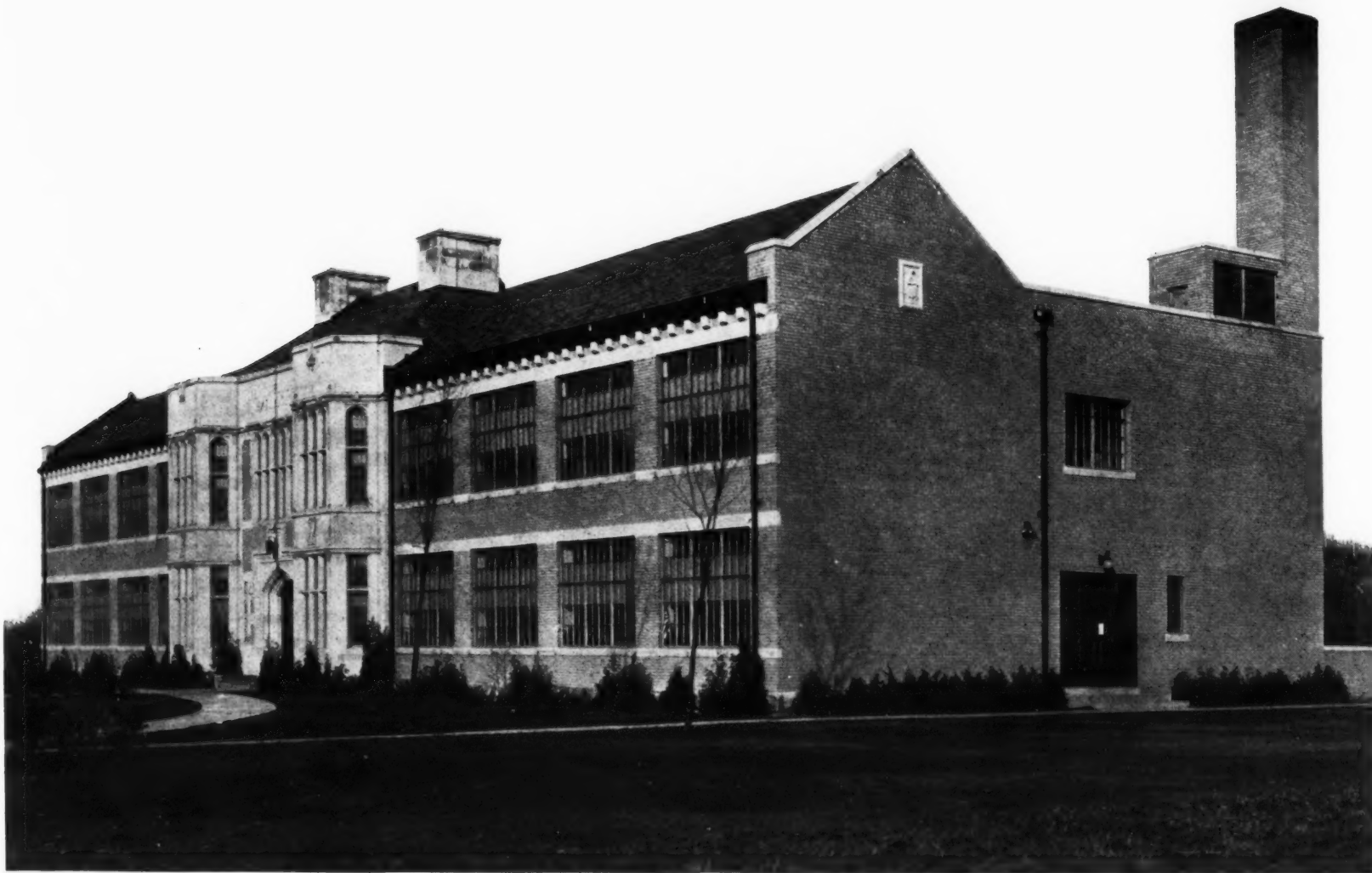
Electricity for the building is supplied by the Edison Company, with 110 volts for lighting current, and 220 volts for power operation. There are two electric elevators and 300 motors in the building, and all machinery is operated by electric current.

The plumbing and drainage of the building compares favorably with that installed in the average city-school system. The structure has a house sewer 18 in. in diameter, with all soil pipes and branch drains, and hot- and cold-water pipes in relative size and proportion.

(Concluded on Page 146)



GYMNASIUM, DeWITT CLINTON HIGH SCHOOL, BOROUGH OF THE BRONX, NEW YORK CITY
William H. Gompert, Architect, New York City



CHARLES A. LINDBERGH SCHOOL, DEARBORN, MICHIGAN
George D. Mason and Company, Architects; Harry C. Vicary, Associate Architect, Detroit, Michigan

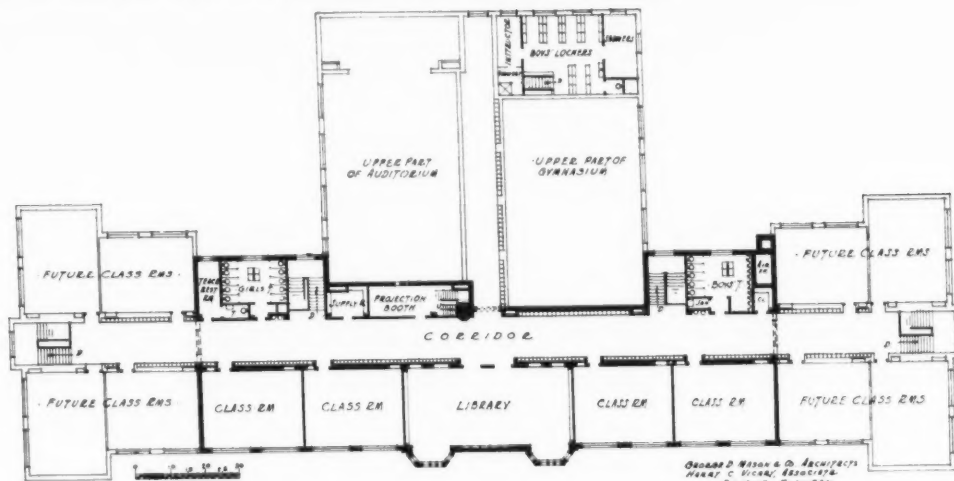
A COMPLETE GRADE SCHOOL

The fine residential suburbs of large cities offer, perhaps, the finest opportunities for the development of high-grade school architecture in the United States. In such communities, the economic abilities of the school district permit the architect a wide latitude in the designing of buildings, as well as the use of high grade materials for both exterior and interior finish. The very atmosphere of these communities is unconsciously reflected in the attitude of the school boards and school officials, and is caught inevitably by the architect.

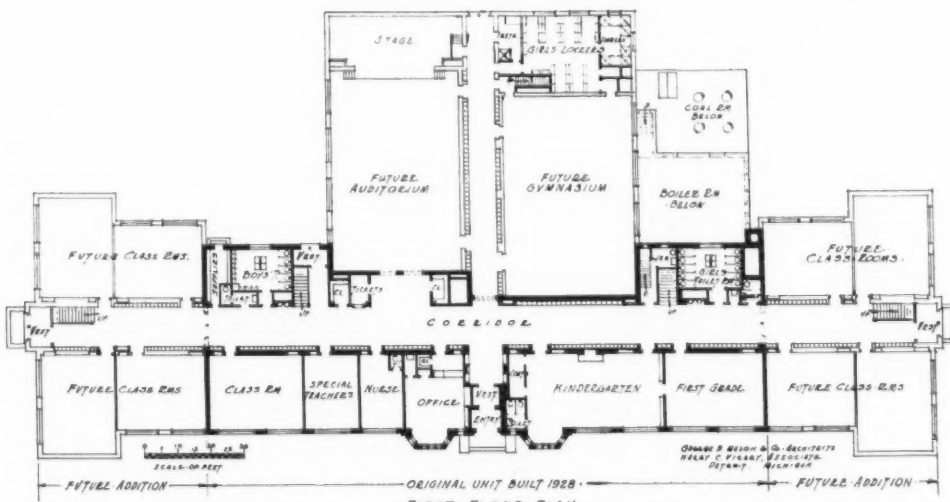
Some of the most interesting types of smaller buildings are to be found in the communities surrounding New York City, Boston, Chicago, and Philadelphia. Recently, some of the suburban communities near towns or cities of very recent growth have similarly developed. Detroit is one of the cities which has been especially fortunate in having suburban communities that have set high standards of achievement in the planning and construction of new school buildings. Both private and public initiative have been active. An interesting example of what is being done near Detroit is to be found in the new Charles A. Lindbergh School.

The Charles A. Lindbergh elementary school at Dearborn, Mich., has been planned to meet the needs of a growing residential section. Only the central section of the building has been completed, but plans have been prepared for a complete unit. In fact, the present building includes boiler capacity and mechanical equipment for the ultimate school plant.

The building is planned in the English Gothic style, with the architectural emphasis on the main entrance and on the two interesting bays which flank it. The exterior has been worked up in limestone and light-colored face-brick. The building throughout is constructed of reinforced



SECOND FLOOR PLAN



FIRST FLOOR PLAN

CHARLES A. LINDBERGH SCHOOL, DEARBORN, MICHIGAN
George D. Mason and Company, Architects; Harry C. Vicary, Associate Architect, Detroit, Michigan

concrete and is fireproof except for the oak trim in the classrooms. The corridors are finished in terrazzo, and the stairs are of steel with alundum and terrazzo treads. The toilet rooms have terrazzo floors and the classrooms have battleship linoleum over the concrete slab.

The building is heated and ventilated with a split steam system, provided with automatic control.

The present unit contains six classrooms and a kindergarten, a teachers' room, a nurses' room, and an office. A large library above the main entrance serves for the present for both library and assembly purposes.

As the demand for space increases, sixteen additional classrooms, an auditorium, and a gymnasium will be added. The architects are George D. Mason & Company, Detroit, Mich., and Harry C. Vicary, associate. The details of the building are as follows:

Construction Data

Date contract awarded.....Nov. 22, 1927
Date building occupied.....September, 1928

Site

Dimensions.....600 by 280 ft.
Principal frontage.....600 ft.

Building

Number of classrooms.....9
Music room.....1

Design and Construction

Exterior design.....English
Exterior facing.....Face-brick and limestone
Construction material.....Reinforced concrete
Corridor and stair finish.....Steel, with alundum and terrazzo treads and oak rail
Finish of toilet rooms.....Metal partitions



ENTRANCE DETAILS, CHARLES A. LINDBERGH SCHOOL, DETROIT, MICHIGAN
George D. Mason and Company, Architects; Harry C. Vicary, Associate Architect, Detroit, Michigan



CORNER OF LIBRARY,
CHARLES A. LINDBERGH SCHOOL,
DEARBORN, MICHIGAN
George D. Mason and Company, Architects;
Harry C. Vicary, Associate Architect,
Detroit, Michigan

Mechanical Equipment

Type of heating.....Split steam system
Temperature control.....Automatic
Plumbing.....Vitreous china,
with chrome plated trim

Cost and Pupil Capacity

Pupil capacity of building.....390
Cost of building.....\$124,900
Cost per cubic foot.....40 cents
Cost per pupil.....\$320



KINDERGARTEN,
CHARLES A. LINDBERGH SCHOOL,
DEARBORN, MICHIGAN
George D. Mason and Company, Architects;
Harry C. Vicary, Associate Architect,
Detroit, Michigan

AN ECONOMICAL GRADE-SCHOOL BUILDING

The Bryant School at Harvey, Ill.
Mr. H. Frederick Beck, Architect

The Bryant School, at Harvey, Illinois, is a 17-room grade-school building, with combination gymnasium and auditorium. The classroom portion of the building is 2 stories high, with the first floor 2 ft. below the finished outside grade.

The exterior of the building is face-brick, trimmed with stone. The design is an adaptation of Gothic. The corridors and stairs in the building are fireproof, while the classroom floors are of wood construction. Each vertical tier of classrooms is entirely inclosed with masonry walls. The finished floors in the corridors and toilet rooms are of Rubberstone asphalt tile, while those in the classrooms and gymnasium are of maple.

All classrooms in the building are of the approved standard size, 23 ft. wide and 32 ft. long, exclusive of the wardrobes. The wardrobes with blackboards on the face of the doors, used in place of the ordinary cloakroom, have proved satisfactory. The upper sash of the classrooms are glazed with maze glass, which aids in maintaining a uniform distribution of light.

The gymnasium, which is also used as an auditorium for public gatherings, has a playing floor 60 by 70 ft., a balcony on three sides of the room, and a stage 53 ft. wide by 20 ft. deep, equipped with drop curtains and stage setting. In connection with the gymnasium are the boys' and girls' shower and locker rooms, a kitchen for serving community meetings, and a lobby with separate entrance to the gymnasium. The



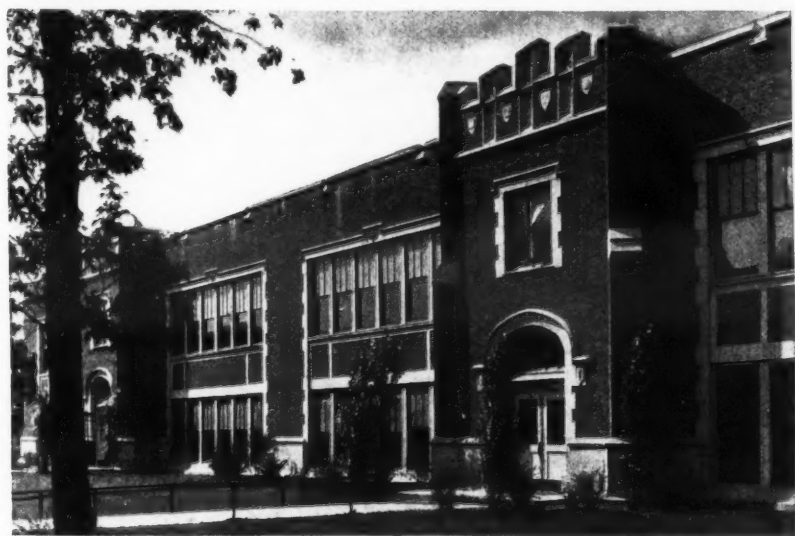
GYMNASIUM-AUDITORIUM, BRYANT SCHOOL, HARVEY, ILLINOIS
H. Frederick Beck, Architect, Chicago, Illinois

interior wall surfaces of the gymnasium and lobby are of glazed brick from floor to ceiling.

Toilet rooms for boys and girls are located on each floor. Each toilet room is equipped with wall-hung fixtures, marble stall partitions, tile wainscoting, and Rubberstone floors. The drinking fountains, which are located in the cor-

ridors, are of the multiple type, with auxiliary valve, which can be opened to allow a uniform flow to each head during peak loads.

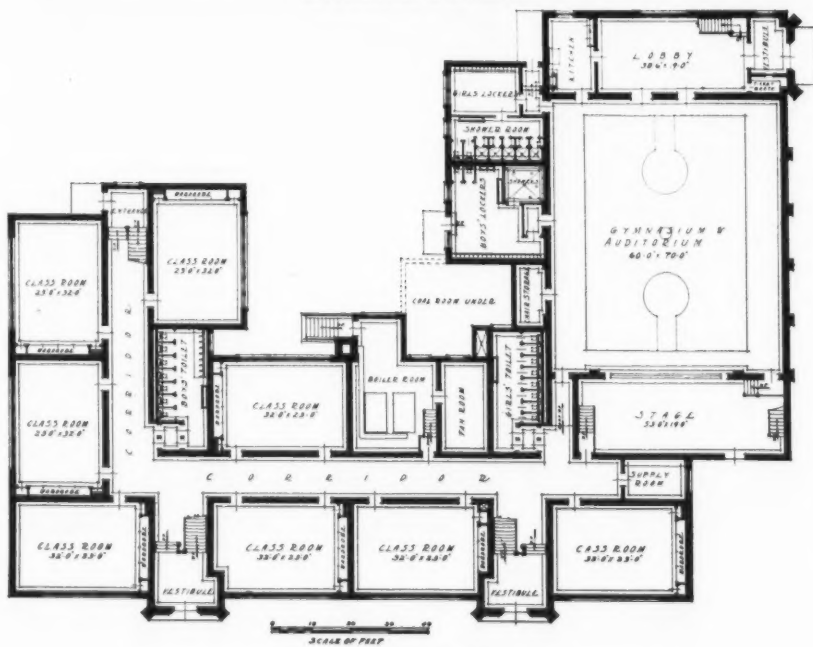
The heating system which is of the split type, permits each classroom and the gymnasium to be served with direct radiation and tempered air. Steam heat is supplied by means of a vacu-



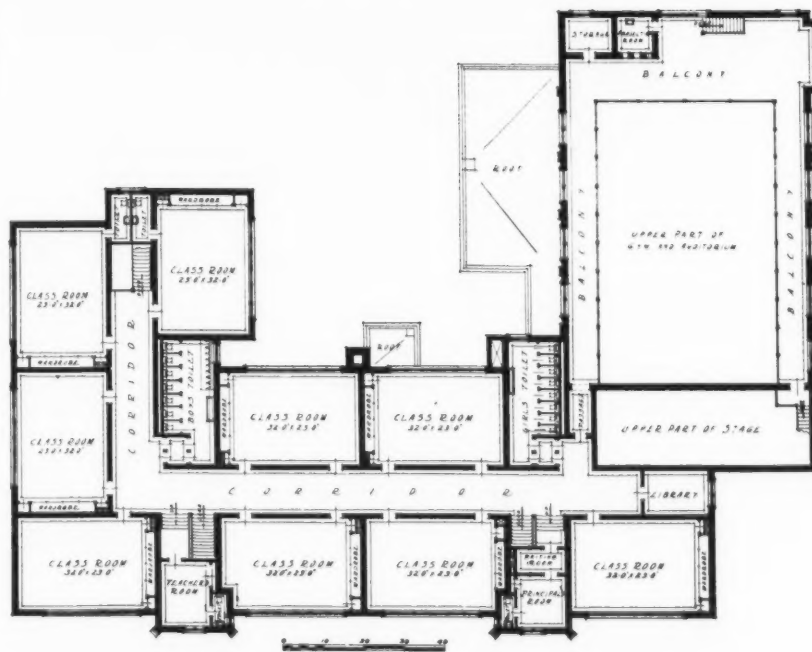
ENTRANCE DETAILS



TYPICAL CLASSROOM

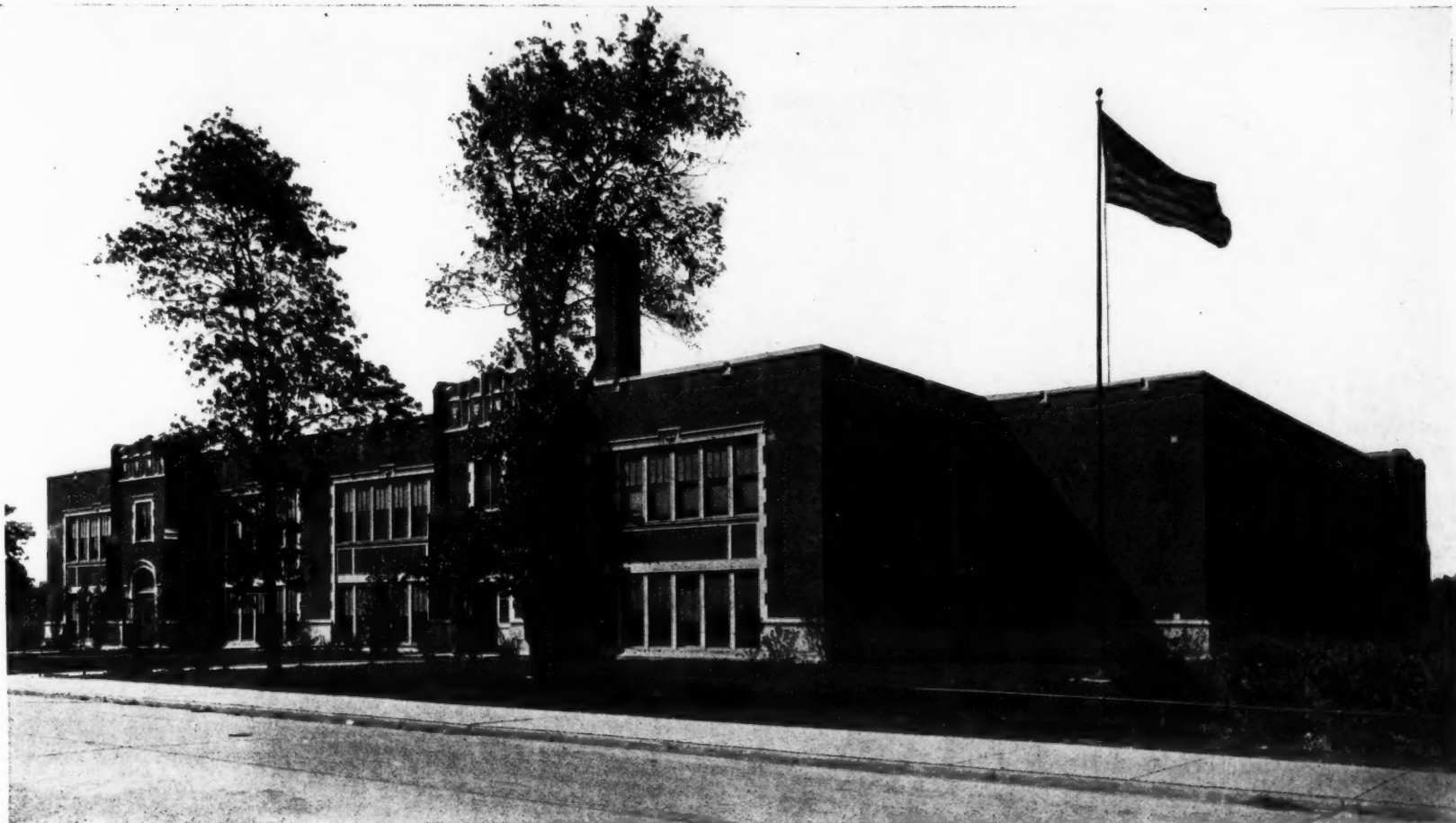


FIRST FLOOR PLAN



SECOND FLOOR PLAN

BRYANT SCHOOL, HARVEY, ILLINOIS
H. Frederick Beck, Architect, Chicago, Illinois



BRYANT SCHOOL, HARVEY, ILLINOIS
H. Frederick Beck, Architect, Chicago, Illinois

BUILDING DATA The Building

Use	For grades
Number of classrooms.....	17
Library reading room.....	1
Offices	1
Book storage	1
Nurse	1
Clinic	1
Teachers' restroom	1
Gymnasium-auditorium	50 by 70 ft.

Design and Construction

Exterior design	Gothic
Exterior facing	Brick
Exterior trimming	Stone
Construction material	Concrete corridors and stairs. Wood classrooms

Interior Finish

Corridors and stair finish.....	Glazed-brick wainscotings
Classroom finish	Oak
Gymnasium finish	Glazed brick
Finish of toilet rooms.....	Tiled walls and marble partitions

Mechanical Equipment

Type of heating and ventilation.....	Split system
Temperature control	Automatic

Cost and Pupil Capacity

Pupil capacity	680
Cost of building	\$176,000
Cost per pupil.....	\$251
Cost per cubic foot.....	28 cents

um system, using two Pacific boilers with Harrington stokers. Automatic temperature regulation is provided in each classroom.

The building accommodates 680 pupils, but may be increased to 850 pupils by seating 50 pupils in place of 40 in each classroom. The total cost of the structure, exclusive of furniture, was \$176,671, which is 28 cents per cu. ft., based on a cubic content of 641,000 cu. ft.

PROFESSIONAL PRACTICE IN SCHOOL BUILDINGS

In view of the fact that so many architects and contractors fail in arriving accurately at costs of construction, the so-called quantity survey has come into consideration. Such a survey deals with a scientific approach to all the items of cost, namely, materials and labor, which enter into a construction project.

The quantity-survey idea has found expression in the so-called quantity-survey bureau, which provides a practical, legal, and economical check upon estimates. It concerns itself with quantities of materials specified, character of materials specified, special conditions, and quantity of labor.

It estimates the job as the architect has designed it to be installed for his customer, and not with the view of tearing down the specifications for competitive advantage. If there is indefiniteness in the plans or specifications, the bureau gets these points cleared up and defined, so that each bidder will have the same information in preparing his bid.

In discussing the subject from the standpoint of school architecture, William B. Ittner, the schoolhouse specialist, in a recent public address, said:

"One of the specific problems in schoolhouse planning and construction is that, after plans are prepared, they must be advertised, viz., open to all builders. The school job is anybody's job who comes along and bids cheap enough to get it and put up a bond to qualify

himself as a builder. Out of every dozen school-building jobs, three or four are failures among contractors, which means that architects must take hold of the jobs and pull them through with the bonding companies. Quantity survey would reduce the number of failures, probably eliminate them altogether by furnishing a definite basis for bidding.

"Another specific problem in the school-building field, is the guesswork among contractors. Oftentimes the low bidder has omitted certain items, or has misinterpreted or overlooked them. In such case he must, of necessity, submit bills for extras. The survey would serve as a check on all items, and these extras which nearly always come in as trouble makers would disappear. The variation in bidding among con-

(Concluded on Page 146)



ELMER S. MEYERS HIGH SCHOOL, WILKES-BARRE, PENNSYLVANIA

This magnificent school plant was completed in the summer of 1929 and occupied in September of that year. It houses a complete junior and senior high school and has a pupil capacity of 2000. The academic section of the building is three stories high and the shop wing at the rear is one story high. The auditorium is at the right end of the building and the boiler house is the appendage at the extreme right.

The building was financed by the pay-as-you-go plan and is paid out of current funds. Wilkes-Barre has practically no bonded indebtedness and appropriates an average of \$400,000 annually for capital outlay purposes. The airplane view here shown is reproduced through the courtesy of Mr. Floyd Siegfried, secretary of the Wilkes-Barre board of education.

The Seating of Kindergarten Children

Beatrice Anderson, Los Angeles, California

The problem of seating in the kindergarten is one which should command attention. Much thought has been given to the problem of seating in the homes, libraries, theaters, and high schools, while very little thought has been given to the problem of proper seating for younger children.

Only recently have educators and manufacturers come to the realization that it is as important for a kindergarten child to be as comfortably seated as an adult. Seating in the kindergartens has probably been neglected because of the fact that kindergarten children move around more freely than children in upper grades. Owing to the softness of bones and cartilages more harm may result to a small child if he sits in poor posture for a few minutes than may result to an adult who sits in poor posture for several hours.

We are becoming more and more concerned about the posture of our children as our attention is called to the fact that we are "a sitting race" due to our modern conveniences. We realize that the faults which come from a prolonged period of assuming a poor position are many and retard the child in his early growth and in later life.

Injuriousness of Sitting on Floor

The attention of the Los Angeles health and corrective physical-education department was forcibly called to this matter about six years ago. During a health survey of the kindergartens it was discovered that most of the kindergarten children sat on the floor or on chairs too high or too low. To the casual observer this would not seem such a bad fault, but to the health department it seemed an injurious practice as the positions assumed by children while on the floor promoted poor posture. The legs were folded so that the knees were up and the balance was poor. The spine curved forward, making a complete round back; the shoulders drooped forward and the chest curved in, making what we call "hollow chest." To complete the picture, the head was thrown back in an unnatural position so that the children could see the teacher who sat above them. If the children sat in this position from half an hour to an hour every day, they assumed this same position when standing. The children who play with blocks or a train on the floor do not hold any particular position, but constantly move around and therefore do not sustain awkward or faulty positions.

With these points in mind the teachers were urged to see that the children sat on the chairs which were provided. The teachers immediately responded with the argument that the chairs were inadequate and they thought it better for



AMERICAN KINDERGARTEN CHILDREN—THE FINEST IN THE WORLD
Note differences in size of three children of the same age

children to sit on the floor than on chairs that did not fit them.

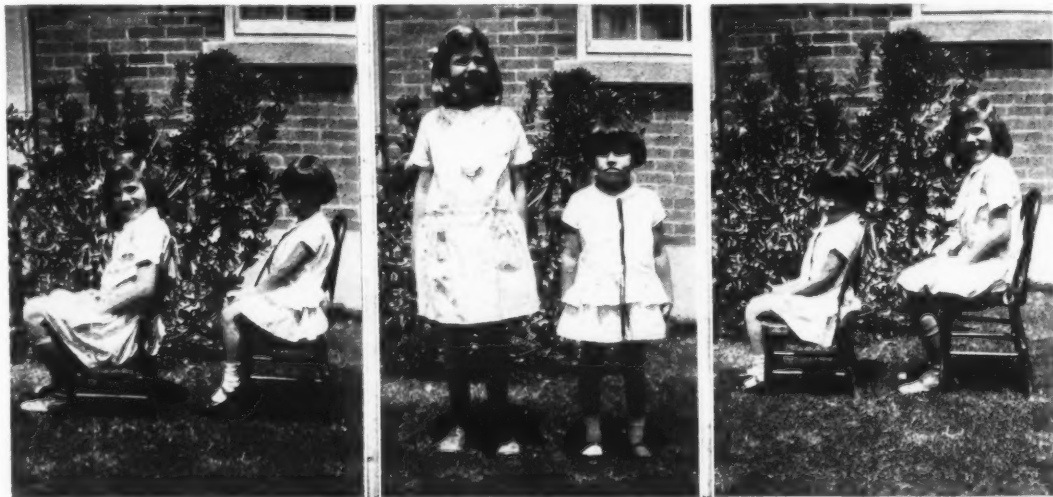
How Heights Were Determined

A further investigation disclosed that some kindergartens were equipped with all 10-in. chairs (the lowest chair) and 20-in. tables (the highest table). Other kindergartens were equipped with all 12-in. chairs (the highest chair) and 18-in. tables (the lowest table). Many chil-

dren were sitting with their feet swinging or with their knees up under their chins. Very few were found sitting properly with their feet flat on the floor and without pressure under the knees. This was considered to be a serious situation when it was realized that it was while sitting at these tables and in these chairs that the teachers made an effort to teach the children how to cut, sew, draw, and learn definite coördinations for the first time.

After having this fact pointed out, an investigation was made to ascertain the correct height of chairs for kindergarten children. The heights of 1,438 children were taken with the discovery that 41 per cent of the children were too tall for the 10-in. chairs and too short for the 12-in. chairs. These children needed chairs that were 11 in. high. The generally accepted fact that children should sit on chairs approximately one fourth of their height was verified through this investigation. It was also discovered that 6 per cent of the children should sit on chairs lower than 10 in. Sometimes a whole kindergarten was included as in the case of Japanese and other foreign schools. A general estimate was made.

It was the decision that the 9-, 10-, and 11-in. chairs should go with the 18-in. tables, the 11-, 12-, and 13-in. chairs with the 20-in. tables. In most kindergartens there is a need for only two heights of tables and three heights of chairs.



CENTER: Two kindergarten pupils of same age. LEFT: Note injurious sitting positions due to incorrect seating. RIGHT: Comfort and health result from chairs of correct height.

Figures Representing Approximate Number of Chairs and Tables of Different Sizes Needed in Schools with Different Classes of Children

Height in inches.....	CHAIRS				TABLES	
	9 inch	10 inch	11 inch	12 inch	18 inch	20 inch
High-Class						
American Children.....		10	25	15	10	15
Middle-Class						
American Children.....		20	20	10	15	10
Mixed Foreign Children..	5	25	15	5	20	5
Japanese Children.....	20	20	10		25	

However, it is impossible to ascertain the correct proportion of chairs for any one kindergarten until the type of children in the school is found out.

The first step after these discoveries was to adjust the chairs and tables then in use by cutting off the legs. The policy adopted was to cut off not more than 1 in. from the chairs so that the breadth and depth of the seat would not be too great for the height. This was done in many schools so that most of the difficulties were immediately remedied.

The next step was to consider the type of chair. The chairs on hand were of several kinds: the old slat-back, the light-weight chair with a small bar at its back, and the oak chair. The round-back type does not allow the children to push back in their seats, but has a tendency to slide them forward. The seat is almost flat. The light-weight type has a small bar at the top of the back but leaves a large space which allows the children to sit with rounded spines. The larger bar at the back and the weight of the wood from which the oak chair is made, makes it unbalanced and too heavy to be carried.

Specifications for Acceptable Chair

When this was discovered, a new type of chair was designed which should eliminate the defects of the old chair and make it possible for the children to unconsciously assume the correct positions while sitting.

The following specifications were made:

1. *Wood.* Maple or any fine-grained wood which is hard enough to prevent splintering.
2. *Weight.* Not more than 5 or 6 pounds. A heavy chair is too difficult for children to carry.
3. *Color.* Light oak. The tables now in use are oak color.
4. *Finish.* Dull—to prevent glare which is injurious to the eyes.
5. *Corners.* All rounded.
6. *Seat.* Saddle to conform to shape of buttocks and thighs. This should not be too deep.
7. *Depth of Seat.* Two-thirds depth of thigh.
8. *Slope of Seat.* Inclined slightly backward to prevent child from sliding forward.

9. *Height of Top Bar.* Just below angle of scapulae.

10. *Bars.* The support should come at the middle of the lumbar curve as well as at the angle of scapulae. If support is not given here, the back rounds and the natural curves of the spine are obliterated. For this reason the space from the seat to the lower part varies considerably as the lumbar curve varies according to the heights of the children. If this bar is lower, it causes pressure on the kidney region; if the bar is higher, the lumbar curve is not supported. The bar at the lumbar curve is separate from the top bar as it has to be set forward to fit into the lumbar curve.

There are some chairs on the market, which fulfill most of the specifications for this chair, but they are too heavy and made of a heavy

wood so that children cannot move them around easily.

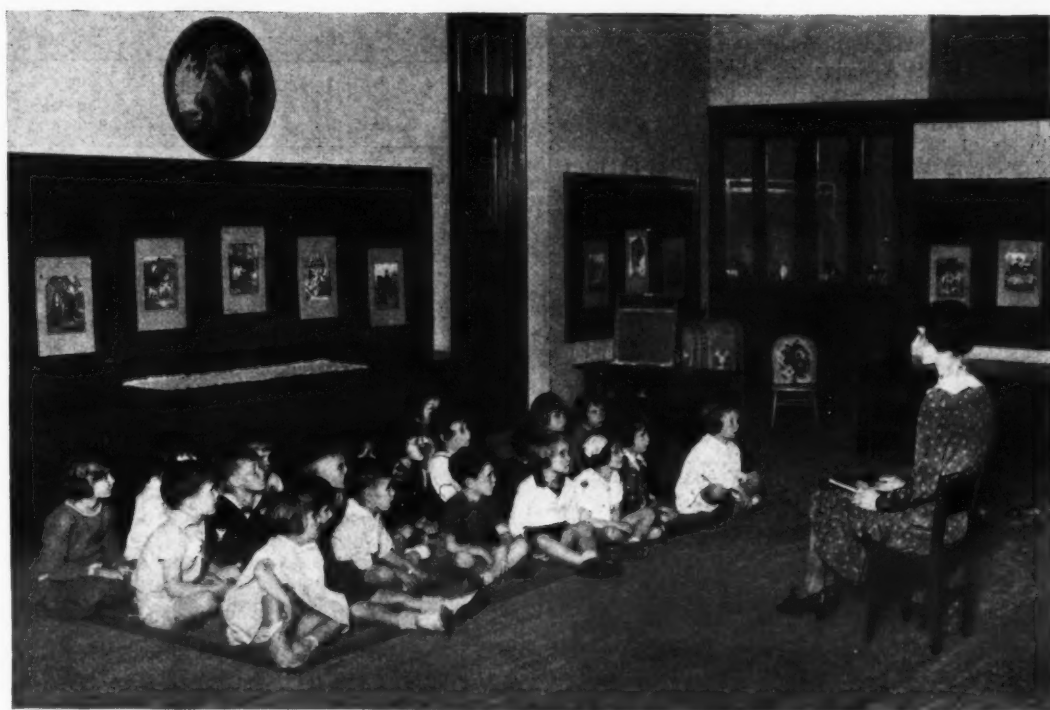
It is difficult to make any definite conclusions, but it is safe to say that the posture of the children in schools where the children sit on chairs that fit them instead of on the floor is better than in schools where they do otherwise.

Although it is impossible to make any radical changes, it is hoped that in the near future there will be a correct chair of the right height for every kindergarten child.

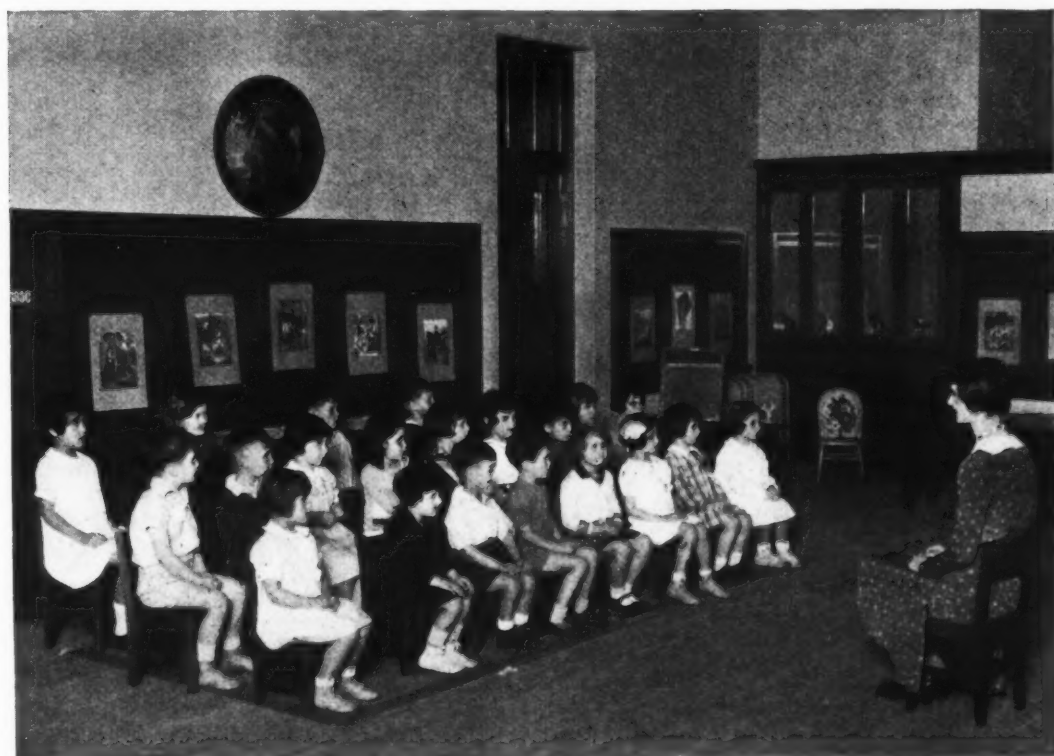
RECENT DECISION ON SCHOOL-BOARD LIABILITY

In most states the courts have decreed that the school authorities cannot be held legally liable for personal-injury cases suffered on school premises. In two states, however, California and New York, the court decisions have been to the effect that in cases of personal injury due to neglect of the board of education the latter is duly liable.

In a school district in California a new type of personal-injury case has arisen which was submitted to the attorney general of the state



WHY SUBJECT CHILDREN TO THIS UNHYGIENIC SITUATION WHEN CHAIRS CAN CORRECT IT (BELOW)?



AN ORDERLY, HYGIENIC SITUATION PRODUCED BY THE USE OF CHAIRS SUITED TO THE HEIGHT OF CHILDREN

for an opinion. In one of the high schools a student was seriously injured in the physics department through the gross neglect of the instructor. The attorney general has held that in this instance the school authorities cannot be held liable.

While the board of education may be held liable, in cases where neglect has been manifested in safeguarding against accidents, the law does not extend to the employees or agents of the board. In the present case there was no opportunity for the board of education to prevent an instructor to become negligent. Therefore, the attorney general holds that the school authorities are not liable.

The opinion in nowise conflicts with the several decisions rendered in injury cases by the courts of California in which the liability was traced to the board of education. The case in hand is the first of its kind, and hence, the interpretation of the law bearing on the same assumes some significance.

TEACHERS' SALARIES

♦ East Moline, Ill. The school board has increased the maximum salary of teachers from \$1,500 to \$1,600 per annum. Teachers who are now receiving the maximum of \$1,500 will be given increases of \$50 next year. In case they remain the following year, they will receive an additional increase of \$50.

School-Business Officials Association Employs Research

The first important results of a complete departure in its policies undertaken two years ago were presented to the National Association of Public-School Business Officials, during the nineteenth annual convention at New Orleans, May 19 to 23. These results were in the nature of reports from four research committees which have been at work one or two years on the broad problems and present practices of (a) child accounting, (b) the purchase and distribution of supplies, (c) the training of janitor-engineers, and (d) the methods of fire and other school-property insurance. Undoubtedly the high spot of the constructive four-days' program which President C. E. C. Dyson presented so ably, was the paper on Coöperative Service of the Superintendent and the Business Manager, by Dr. E. E. Oberholtzer, superintendent of schools, of Houston, Texas. The unexpectedly large attendance not only from the South, but also from the North and West, gave the New Orleans school authorities a splendid opportunity to demonstrate the warmth of southern hospitality as well as to exhibit a most progressive school system. Vice-President Charles L. Barr was advanced to the presidency for 1931, and William A. Decker, of Altoona, was chosen first vice-president.

The Meetings

The National Association of Public-School Business Officials in its early years pursued the policy of developing the conventions around a limited number of set papers which formed the basis for frank discussion and extended debate. In each succeeding year, the presidents have been importuned to fill up the program of addresses, and gradually the exchange of experience and opinion, so challenging to the writers of papers, has been relegated to the comparatively brief evening round tables. There was ample evidence at New Orleans that the Association is ready to return to its earlier practice—to meet in a comparatively small room, to distinctly limit the papers in number, and to provide for discussion under prepared leadership. This change, with the extension of the round tables which encourage the utmost freedom, as was the case in New Orleans, will overcome the difficulties arising from increasing numbers in attendance and from the growing tendency of members to give away to large-city attractions.

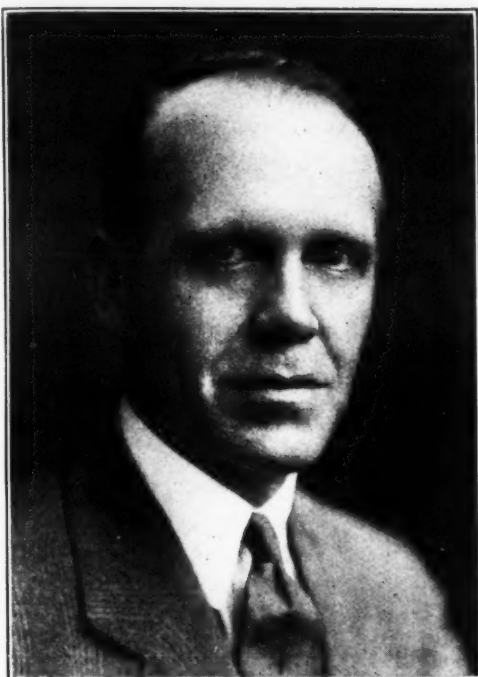
In building his program with characteristic Canadian energy and insight, Mr. Dyson succeeded in assembling a remarkably incisive and valuable series of subjects. Equally successful was his choice of speakers who, with one exception, presented or sent their papers. In his annual address on Tuesday morning the president reviewed the recent progress of the association and forcibly pointed out that further growth must come from service based on year-round activities—study, research, better program building, and self-betterment in the job and for the job of school administration.

Supt. Nicholas Bauer made clever use of the slogan, "I used to" imputed to New Orleans, to welcome the visitors to inspect for themselves the magnificent social, economic, and educational progress of the city. The response of Mr. F. D. Chambers, of New York, took its cue from the note of progress sounded in the local situation, to point to the progress and the problems in school affairs of the United States and Canada and to suggest the need for intensive study and prompt solution of all school-business administration problems which are thrust upon school officials by the impetus and the growing complexity of life and public affairs.

Mr. Z. Hilton, Esq., member of the board of education, Toronto, Ont., closed the session with a plea for informing the layman on the work and needs of the schools. In part he said:

"One of the first things the layman ought to know is the size of the business, and he should see the entire task in full. Unfortunately, the majority of us are creatures of very limited districts, and are not aware that the days of the little red schoolhouse have changed, and that the task has now to do with the housing of thousands of young folk in comfortable, pleasant, and healthy surroundings. Wise school administration involves the adaptation of our schools to the needs and conditions of the particular pupils attending them.

"As in any private business, the revenue of that business is largely in comparison to the actual service rendered, so it must be in educational matters; and if



CHARLES L. BARR.
President-Elect, National Association of Public-School
Business Officials, St. Louis, Missouri

the services are to be multiplied, and more sections of our community reached and served, then correspondingly will the expense of that service need to be carried.

"If our buildings are to be larger and of better architecture, then the construction and maintenance will naturally cost more, and one question that every citizen should ask is 'Is our money being spent in a proper manner? Are our methods of financing correct? Which is right: The sale of bonds and the mortgaging of the future, or should we adopt a pay-as-you-go policy? What are the annual increases in the teaching, administration, and maintenance staff? To what extent is the number of our students increasing each year, and what provision is being made for that increase? Or, let me put it in a few short sentences so that every layman can easily understand: First, what is being done; second, why is it being done; and third, how well is it being done? And, in our day, thanks to the advancement of education, we have the means at our hands, in the public press, to assist us to sell to the public, 'what is being done.'"

Tuesday Afternoon Session

Teachers' pension plans must be based upon sound actuarial experience, if they are not to fail and in failing embarrass the school board and bring misery to the old age of deserving men and women. This was the warning sounded by Mr. A. J. Tete, assistant superintendent of the New Orleans schools in charge of business affairs and official host of the convention. A wisely planned annuity system and adequate provisions against accrued liability, arising from the presence of older teachers in the system are essentials of any successful retirement scheme. New Orleans has provided for these essentials in its reorganized plan which in 1918 replaced a bankrupt plan.

Continued success in school finance will demand attention to refinements in budgeting and accounting, and better methods of taxation, according to William C. Bruce, editor of the *SCHOOL BOARD JOURNAL*, the second speaker.

Two outstanding school architects of Texas closed the session with constructive papers on the planning and construction of schoolhouses in the South. Mr. Harry D. Payne of Houston, Texas, discussed "The Lure and Interest of the Small Schoolhouse," which involves the solution of the difficult problem of providing for a well-rounded educational program for small numbers of children, with extremely limited funds. Mr. Roscoe P. DeWitt outlined the "Peculiarities of School Building in the Southwest," which have developed out of the historic and social background of Texas and which involve astonishing variations in climate, economic ability vast extent of territory, racial differences, agricultural interests, etc. Both men gave most convincing evidence that the Southwest is outstripping the older sections of the country in energetically and intelligently solving its school-planning problems.

High Spots of Wednesday

Houston, Texas, may be pointed to as one of the happiest school cities in the country. It is in possession of two outstanding school executives, a superintendent of schools and a business manager, who embody the best ideals of school-administrative relations. Supt. E. E. Oberholtzer, of Houston, who opened the Wednesday morning session, gave numerous clues to the underlying reasons of his success and of that of Business Manager H. L. Mills. In discussing the coöperative nature of the service of the superintendent and the business manager, Mr. Oberholtzer laid down the principle that all people in executive schoolwork are professional men and render a professional service. They are teachers in a sense who must have a share in the burdens and problems of instruction for the betterment of all. All business interests on the schools and all educational interests are most closely intertwined. The objectives of both are the same. These objectives are not tangible like those of industry, but they will fail to be realized, if all business administration is not adjusted to educational needs and service. The school as an agency of the state is under the policy-making control of the school board which because of the growing complexity and difficulty of administration must place a superintendent in charge as chief executive and expert. Associated with the superintendent there must be executives and experts who carry on all the details of educational and business management coöperatively. The three chief functions of school administration are: (1) *legislative and policy making*, or planning; (2) *executive*, or carrying plans into practical effect, and (3) *appraisal*, or judging results and readjusting and adapting practices for greater effectiveness. It is the school executive's job to plan the work and work the plan, as expert and technician. Successful coöperation for carrying on the three functions of administration depends on (a) a complete understanding of the educational job of the schools, (b) a scientifically trained and experienced staff, (c) unified and energetic effort to achieve the program of the schools, (d) an efficient staff of teachers, principals, and janitors, and (e) an effective accounting and reporting system. The entire school staff must operate harmoniously and sympathetically; the individual executives must know and appreciate and help one another, or at least act sympathetically—all for the success of each and of the entire school system. Every school staff—from the humblest janitor to the business manager and the superintendent—must engage in a continuous program of improvement in service through appraisal and study. In closing, Dr. Oberholtzer described some of the practical details of the Houston school organization, which have contributed to its marked success.

Mr. F. B. Edmunds, Esq., member of the Toronto school board, read a valuable paper prepared by Mr. N. H. Bilbrough, chief accountant of the Toronto schools, on "A Study of School Accounting in Canada."

Mr. Edward Merchant, secretary of the school district of Philadelphia, opened his suggestive discussion of school accounting practices by arguing that it is the duty of business administration to directly hold down school costs, but that there must be no interference with the expansion of the educational service of the schools. Philadelphia has a carefully developed system of budgeting and accounting based upon accepted national standards and involving many local refinements to insure effective administration and equality in instruction, quite as well as economy. These Mr. Merchant described in detail. He closed with this warning:

"The taxpaying public has stood, and still stands, ready to make sacrifices for the benefit of the school system, but once let that same public conceive the idea that the money is loosely spent—there will be a complete reversal of attitude. It is within our power and solely within our power to either keep from the error of loose and wasteful expenditure or correct the error if it already exists. There is enough splendid brain power within this organization to make the school systems of the country the outstanding models of municipal accounting; until we have done this, we shall not have done our duty."

Fire and windstorm insurance, as details of school business administration, are subject to variations in practice and cost that indicate distressing



MEMBERS AND GUESTS OF THE NATIONAL ASSOCIATION OF PUBLIC-SCHOOL BUSINESS OFFICIALS AT THE NEW ORLEANS CONVENTION

inefficiency and neglect of economies as well as commercial interference with efforts for improvement. In a comprehensive report that suggests the splendid possibilities of research on the part of the Association, Mr. H. C. Roberts, of Sioux City, Iowa, described the confused and widely varying practices of communities and states, and the difficulties and differences which arise in school systems of large and small size. While Mr. Roberts and his committee wisely refrained from making definite recommendations or setting up standards, it was clear that the large cities which have widely separated school buildings can safely carry some form of self-insurance, while small communities should heartily support movements looking toward some form of state insurance like that of South Carolina, North Dakota, or Wisconsin. The report of Mr. Roberts foreshadows, we think, a long step toward economy and good practice.

A Session of Reports

The session on Thursday morning was opened by Mr. John B. Wynkoop, of Bridgeport, Conn., who took up the basic problems of financing new

school construction. Mr. Wynkoop is convinced that the current tendencies in the expansion of school service are such that all expenditures for new school construction must be met out of bond issues. To pay for new schools by direct taxation is an unwise policy because it primarily slows up needed expansion of the school plant and fails to pass on to future generations the burden of paying for school buildings which they enjoy. The use of contingent funds and short-time notes was similarly condemned by Mr. Wynkoop. Financing new schoolhouse construction presents a phase of a larger financial problem of so expending the taxpayers' money as to provide an adequate setting for the progress of the educative process. A good deal of economy is yet to be practiced in the construction of new schools by planning larger but fewer units, by standardizing construction, by observing the population tendencies, and by studying the curriculum from the economy standpoint. School bonds should be carefully studied from the standpoint of insuring their retirement during the life of the building. The serial type of bond presents, perhaps, the greatest economy and the greatest factor of safety.

A most valuable report on "The Selection, Purchase, Storage, and Distribution of Supplies" was read by Mr. J. S. Mullan, chairman of the special research committee on school supply problems. Mr. Mullan and his associates contented themselves with presenting the results of their study of present practices concerning the selection, purchase, distribution, warehousing, and inventorying of supplies. As Mr. Mullan made clear in his discussion of the report, the committee has taken the first step to learn what is being done in representative cities. It remains for future committees to set up principles and to discuss methods applicable to cities of varying size.

Mr. R. W. Adkisson, of Okmulgee, Okla., presented the results of a year's study of the problem of training janitors. In a modest fashion, Mr. Adkisson presented a most thoroughgoing statement of practices in large and small cities. The findings of the committee may be summarized in eight points:

1. The training of school janitor-engineers is recognized by school officials as an important factor in school-plant operation.
2. Interest is shown in improved methods of selection as a means of obtaining a more desirable type of men as janitor-engineers.
3. Apprenticeship is by far the most prevalent type of training in present use.
4. Instructional meetings held weekly or monthly are favored by cities both large and small as a means of training janitor-engineers. This plan in conjunction with apprenticeship training, is ranked as a high second choice from the practical or theoretical viewpoint.
5. Cities under 100,000 inhabitants choose apprenticeship or instructional meetings as methods best suited for cities of their size.
6. A well-equipped training school, supplemented by apprenticeship, is accepted as the most ideal method of training janitor-engineers. This plan is indorsed by those cities in which it has been tried.
7. The training-school method has been confined, as a rule, to cities of more than 100,000 population.
8. There appears to be a discrepancy between the expressed choice of methods of training under local conditions and the actual methods in use. This can be explained in part through our natural inclination to continue to do things as in the past, and through the lack of directors properly equipped to carry on the training under other methods than those in use.

The most valuable and scientific report presented to the convention was that submitted by Mr. R. L. Daly and his associates of the Committee on Pupil Cost Accounting. Mr. Daly's committee presented five separate papers, taking up in detail all of the social, educational, and accounting factors to be considered in a well-balanced school accounting plan. Mr. Daly's report, as well as the papers of his associates, give promise of vast improvements in pupil accounting in the next few years.

Business of the Convention

The school business managers of the United States apply in their association all of the experience which they have gathered as secretaries and business managers of their respective school boards. They are punctilious in observing parliamentary practice and courtesy, but they drive through matters of minor detail with breath-taking speed.

The annual election of officers clearly indicated a desire to recognize excellent service rendered by

(Concluded on Page 124)



THE OFFICERS OF THE CONVENTION
Secretary John S. Mount, Mrs. Dyson, President C. E. C. Dyson, President-elect C. L. Barr, and
Treasurer H. W. Huston

THE AMERICAN School Board Journal

EDITORS:



WM. GEO. BRUCE

WM. C. BRUCE

Shall School-Board Executives be Subjected to Special Training?

THE suggestion that the higher institutions of learning give attention to the subject of public administration, and provide special training for those who contemplate entering upon public service, is occasionally heard. The thought advanced in this connection is that higher standards of service should be exacted if the machinery of government is to be run upon a basis of maximum efficiency.

Dr. Samuel C. May, a writer on the subject, who urges university training for public officials, recently said that: "Budget control, personnel classification, centralized purchasing, and reorganization toward systematized and coordinated administrative machinery have suggested the development of a science of public administration which might rapidly apply to the problems of government the accumulated knowledge and information which science and experiment can furnish."

He then suggests four main classes of possible students as follows:

- (1) Those with professional or special training who desire to understand the application of their knowledge to public service, the administrative machinery and technique for performing the functions involved, and its relationship to other parts of the governmental machine.
- (2) Those students who desire to get a general technique in the field of management which would enable them to enter positions which have to do with the general supervision of the administrative structure as a whole or to engage in governmental research.
- (3) Public employees of maturity and experience who desire to improve their work.
- (4) Mature students of political science who desire to carry on research and investigation in the theory and practice of public administration.

The subject, approached in its general aspects, unquestionably contemplates the inclusion of those employed in the field of school administration. While professional workers must measure up to certain educational standards, those who attend to the business labors are not subjected to special training for their task.

Thus the question is sometimes put thiswise: If teachers, principals, supervisors, and superintendents must measure up to certain qualifications, involving special training and scholarship, why not those who serve in an executive capacity, such as secretaries, business managers, or superintendents of school buildings? The answer must be that every official should measure up to the requirements of his job, but it does not follow that the several positions involve a higher training in order to insure efficiency. The average school administrative body therefore selects its employees in its own way, and holds them to standards which it believes to be sufficient unto themselves.

There are those, however, who hold that the secretary and business manager of a school system should possess professional training, hold a college degree, and serve in the capacity of an assistant to the superintendent. The argument here is that the secretary and business manager shall be a schoolmaster, plus training in the affairs of business, and that in his combined capacity of educator and business executive he may fulfill the duties of his office with the highest degree of efficiency. In other words, business ability is thereby believed to lend itself more closely to the cause of education.

But, there are also those who do not subscribe to this viewpoint. They question seriously the practicability of exacting a doctor's degree when it comes to the selection of a school business executive. The hard-headed member of a board of education, who in his private capacity knows how to deal with men and affairs, is more likely to base his choice of school executives upon the promise of ability and experience. He looks for character, intrinsic merit and actual performance, rather than for the virtues of a college diploma, believing that the rules of

sound business procedure as applied to school administration, are no different than those applied to any other enterprise.

If the secretary of the board of education is versed in accounting, knows how to adapt his records to the needs of the school system, and possesses reasonable business judgment, he may be able to meet all the duties coming within the province of his office.

If the business manager possesses adequate training in the field of commerce and trade, knows how to purchase wisely and administer the affairs of his office economically, and in addition to these qualifications, possesses executive ability, he may render an efficient service.

If the superintendent of school buildings possesses a technical training along construction lines, has a knowledge of the engineering problems likely to arise in a modern school plant, has a thorough grasp of the school housekeeping side of things, manifests reasonable intelligence, industry and judgment, he ought to be regarded as a capable official.

Whether it is necessary to require a university training in order to develop the technical skill, the business judgment, and the ordinary executive ability which these several positions involve, is an open question. With the growth of the American school system, the expansion of its activities, and an increase in its complexities, an efficient staff headed by able executives is necessary. But, we are not ready to hold that in selecting a competent secretary, a business manager or a building superintendent for a school system, that a university diploma should or must be exacted.

Some Aspects of the School Equipment Problem

IN the many discussions engaged in by educational bodies year in and year out, the emphasis is laid upon the efficiency of the teaching force as the cardinal essential to a good school. That is exactly what it ought to be. The teacher can make and unmake a school. That was true when schools first came into vogue, and it is as true in our modern day.

In the discussions which accord to the modern teacher the prestige and appreciation, which is his or hers, and pay due tribute to an indispensable public servant, there is also the tendency to minimize, or even overlook, the factors that make for teacher efficiency. In a modern day we recognize that a properly built schoolhouse, serviceable supplies and equipment, good textbooks, and wise administrative direction, are essentials in the attainment of the highest teaching efficiency.

"A school cannot operate at all unless somebody has provided the building and the appropriate equipment within the building," says Charles H. Judd, director, school of education, University of Chicago, and then turns his attention to the lack of imagination in the matter of school equipment and inadequate foresight in providing such equipment. On this score he says: "A great many schoolrooms are nothing but four walls and a collection of seats. There is a monotonous uniformity in the rooms used for the different grades which makes it perfectly clear that whoever has charge of those rooms has merely followed the practices of the past and has never set his mind to the task of seeing how each room can best be prepared for the particular activities that are there to be undertaken."

"Nothing can be more impressively, in contrast with the lack of imagination, exhibited by many school administrators in regard to classroom equipment than the practice which is fortunately becoming more and more common in the construction and furnishings of new buildings of trying to picture in advance what is needed in classrooms in order to make them comfortable and adequate. Even where an administrator has only very limited financial resources, he and his staff should prepare a list of the maps, pictures, book filing cases, and apparatus which are desirable. What is needed for a second grade is very different from that which is needed by a sixth grade."

"In most cases the list of desirable articles will lead school officials to take steps toward better equipment and in the long run much of what is asked for will be given. Certainly no equipment appropriate to progressive work will be furnished unless somebody has the imagination to foresee the possibilities of bettering conventional arrangements."

The management of supplies is becoming increasingly important. This is not only due to the fact that more and better supplies are demanded through the expansion of the school service and the more intensive pursuit of its objectives, but also to a wiser distribution and application of classroom paraphernalia.

In the selection, purchase, storage and distribution of school supplies, the factor of economy becomes important. There is economy not only in selection and purchase, but also in storage and distribution of supplies. A storeroom that is understocked may prove as uneconomical as one that is overstocked. On the score of the latter, Professor Judd says:

"School boards are sure to react violently to oversupplies. Not only so, but the administrator who is guilty of overstocking his school is usually also guilty of lack of energy in stimulating teachers and pupils to do more than the mere routine of reciting what is written in textbooks. It requires imagination to keep supplies in circulation and to discover effective ways of routing them. Schools can learn from transportation companies. Some of the best brains in the transportation world are devoted to the task of keeping equipment in circulation and making sure that equipment is located at the point where it can be most effectively used."

Thus those intrusted with the purchase and distribution of school supplies and equipment must not only know the exact quantity that must be bargained for, but the uses to which such supplies and equipment are placed, if economy all along the line is to be achieved. To buy at the right price is one thing, to secure the proper use of the article bought is quite another.

Indianapolis Engages in a Master Stroke

THE school affairs of Indianapolis, Indiana, which have been in a turmoil for several years, are giving promise of a brighter day. The new board of education which assumed the helm early this year performed a master stroke in the selection of a school superintendent.

The board of education cast about for an educator of national prominence and of acknowledged ability as a school executive. It found such a man in the person of Paul C. Stetson, of Dayton, Ohio. The *Indianapolis News* by way of comment says:

"Mr. Stetson has his way to make in this city, but his record speaks well for what he may do here. The school commissioners did not decide to offer him the position until they had obtained advice from some of the best-known educators in the country. All with whom they talked recommended the Dayton man. The action was unanimous and the board feels that it has made a long forward step in the direction of bringing up the local schools to the highest educational standards."

There is every reason to believe that Mr. Stetson "will make his way." It will remain for the board of education to give him enough elbow room to make good. Superintendent Stetson's reputation is fully established, while that of the Indianapolis board of education is still in the making.

The Modern Approach to School Architecture

THE school boards of New Jersey recently received a circular letter from a joint committee representing all of the architects associations of the state. The letter advises that the approach to "a new schoolhouse project should begin by finding the right architect, and not through some architect selling himself to the board."

The attitude of the New Jersey architects is commendable. In fact, it is surprising that the architects, in their collective capacity, have not acted sooner and thus discourage the practice of recognizing inexperienced architects to plan and build school buildings.

In saying this it must be remembered that school architecture has been developed to a point where a school is no longer fitted into a structure, but rather where the structure is made to fit the school. That eliminates the dress-pattern schoolhouse plan and the man whose experience has never gone beyond the building of a barn, a residence, or a garage.

The evolution of school architecture has brought to the fore the specialist who approaches his task from the standpoint of the educational objectives to be pursued within the structure. He responds to the several considerations which necessarily shape the orientation and equipment that will serve best the kind of school wanted. Again, environment and location may play an important part in shaping the type of structure required.

It is indeed gratifying to learn that at last the architects have themselves taken the initiative in advising school authorities in the matter of selecting architectural service. The failures in the school-building field, and they are found in all sections of the country, are in the main due to the employment of architects who have not made a special study

of schoolhouse planning. They impressed school authorities with a few attractive drawings and a few plausible arguments. The result was a school structure which is clumsy in design, inconvenient in arrangement, and expensive in operation.

There was a time when the planning and construction of a schoolhouse had its beginning with the architect. Now the planning of a school structure has its inception and beginning with those who are expected to labor within its walls. The judgment of teacher and principal, of superintendent and school-board member, enters into the preliminaries.

The modern schoolhouse meets in the highest degree the purpose for which it is reared. Its being is not the creation of a day. It embodies the accumulated experience of many years and many minds. It has become a distinctive achievement because the school authorities have chosen the architect who knew how to plan and build a school, and because the architect had the ambition to excel. Therefore, the American schoolhouse, of the modern type, is the most beautiful and utilitarian structure of its kind in the world.

The Process of Trimming School Budgets

IT has been said that the periods of prosperity and depression, which alternately assert themselves in the business world, do not in any wise affect the financial status of the regular educational endeavors. The schools must be kept going just the same.

The fact remains, however, that the attitude of mind which attends the country's economic periodic rise and decline, is reflected to some extent in school administrative deliberation. The citizen who has been obliged to retrench his private expenditures will scrutinize his tax bills more closely. The school official, who must determine upon expenditures, will at least exercise greater caution in this or that cost item not already definitely fixed.

A business depression primarily affects public expenditures in the manifestation of an increased number of delinquent taxpayers. The public treasury is replenished at a slower pace, or else shows a reduced income. In either case the suggestion that public expenditures must be approached with greater conservatism becomes a state of mind.

As far as the administration of the public schools is concerned it does not appear that radical slashes in budgetmaking are either practical or necessary. The question recently came to the fore at Akron, Ohio. Supt. Thomas W. Gosling called attention to the stringencies of school finances; more funds are required to keep up the desired momentum and required standards. But someone cried out "Curtailed! Trim your budget. Cut the coat to the cloth."

Then the editor of the *Akron Times-Press* rose to the situation and said: "We can only tell the school board: 'Be as economical as possible. Show us by your administration of available funds that you are getting us the most for our money; and if you need more, we'll find it for you somehow.'"

"Akron's taxpayers will not okay lavishness on the part of the board at this time. They will scrutinize school expenditures, and insist upon getting dollar value from the school system. But neither, we believe, will they countenance any inefficiency in the school system to which they would contribute by denying the schools money for operation."

That, in a way, tells the whole story. What applies to Akron applies to thousands of other communities. The schools must be maintained upon high standards of efficiency. The public will not be satisfied with anything less. Lean years will come and go. Prosperity usually comes back. The country on the whole is well able at all times to pay the cost of good schools.

If periods of business depression have the tendency to create greater caution and circumspection in public expenditures, they have at least one redeeming feature. As far as school budgetmaking is concerned there can be no doubt that thoughtful consideration of every item is always desirable. But school budgets cannot be subjected to the economic variations which may beset the country. The schools must continue the steady gait and serve the nation with the highest degree of efficiency.

Therefore school budgets can no more be denatured in times of depression than they can be padded in times of prosperity. Reasonable, common-sense economy in school administration is always in order. And it is because the American schools have, in the whole, been administered with reasonable economy that radical cuts and curtailments in school budgets are out of the question.

Bond Interest Rates Dropping

Harold F. Clark, New York, N. Y.

INDEX OF SCHOOL-BOND PRICES

School-bond interest rates moved somewhat lower during the month of May. The net increase rate on all school bonds sold during the month of May was 4.55 per cent. This compares with a rate of 4.60 per cent during the month of April. The general trend of bond prices has been downward ever since the middle of last summer. Bond interest rates had been rising for almost a year previous to that time. Even now, after a decrease extending over several months, bond interest rates have dropped only about half the distance from their high point. In other words, even though a rate of 4.50 per cent represents a drop of a full half of 1 per cent it is not a low rate.

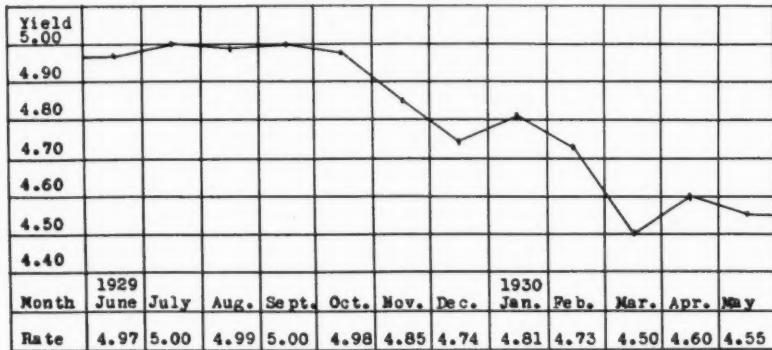


TABLE I. AVERAGE YIELD OF ALL SCHOOL BONDS SOLD DURING THE MONTH

A recent news item goes far to explain why interest rates have not dropped more rapidly. This news article stated that the new security issues for the first five months of 1930 were approximately \$3,400,000,000. This compares with \$3,200,000,000 in 1929. Security issues during 1929 were at a phenomenally large level. The proportion of bonds in the total security issues in 1930 has increased almost 70 per cent as compared with 1929. Stock issues have declined almost that much. The amazing thing is that the bond market has been able to absorb this enormous amount of bonds and at the same time register this substantial decrease of interest rates on bonds.

If the quantity of bonds issued during the first five months of 1930 had been held to a reasonable amount, there is every reason to think that an even more decided improvement would have taken place in bond prices.

Will bond interest rates go to lower levels? Anyone interested in the answer to this question could do no better than to watch reported totals of bonds being sold. If the total quantity of bonds sold remains at abnormally high figures, only moderate improvement can be expected in bond prices. On the other hand, if the quantity of bonds issued should show any tendency to diminish, there is every reason to think that with other conditions as they are, bond interest rates would move to decidedly lower levels.

TABLE II
Amounts and Yields of Bond Issues²

1. School bonds sold during the month of May	\$ 17,372,000
2. All municipal securities sold during year (to date)	518,678,000
3. All school bonds outstanding (estimated)	3,271,000,000
4. Average yield of all school bonds outstanding (estimated)	4.65%
5. Yield of school bonds of ten large cities	4.39%
6. Yield of United States long-term bonds (quotation the middle of June)	3.30%

²The monthly yield of school bonds does not include all the bonds issued in the month, due to the difficulty of obtaining the yield on some of the issues.

With the general ease in money which exists at the present time there is no reason why bonds of school districts should not sell at a substantially lower interest rate than they are at present selling. Although our index of school-bond interest rates has dropped 50 points in the past eight months, we

¹Copyright by Harold F. Clark.

would not consider interest rates really low until another drop of at least 40 or 50 points has taken place. In other words, although interest rates on many classes of loans are the lowest they have been in years, the full advantage of these lower money rates has not appeared in bond prices.

The change which has occurred in interest rates is graphically shown by the financing of the Federal Government which took place on June 15. According to the news dispatches these treasury certificates of indebtedness which will run for one year will carry an interest rate of only 2½ per cent. This is approaching the lowest rate which has been paid since the world war. Some of the certificates which mature carry approximately 2

TABLE V
Security Prices and Yields⁷

Date	Average Price of 406 Stocks	Average Price of 60 Bonds	Average Yield on 60 High-Grade Bonds
June 1930	168.48	98.18	4.538
May	170.58	97.98	4.548
April	181.0	97.6	4.56
March	172.4	97.8	4.55
February	166.5	96.4	4.65
January	156.3	96.5	4.64
December 1929	153.8	96.5	4.64
November	151.1	95.7	4.70
October	201.7	95.1	4.73
September	225.2	94.8	4.76
August	218.1	95.0	4.74
July	207.2	95.2	4.73

⁷As reported by Standard Statistics Company, Inc. Used by special permission. 1926 average = 100. ⁸Not final.

over a period of months interest rates should work to lower rather than to higher levels. We would strongly suggest that any school board consider the possibility of doing its building by means of temporary loans at least during the immediate future. There are some school districts in which it is not legal to borrow for short periods in anticipation of bond issues. This is certainly unfortunate from the strictly financial standpoint. So many times only a small amount of money is needed at first and the rest of the money in the following months. It is almost impossible to sell bonds just at the time this money is needed. On

TABLE III
Bond Sales and Rates³

Year	Schools	Municipal	All Public and Private	Year	Average Rates
1929	\$230,000,000 ⁴	\$1,432,000,000 ⁴	\$10,194,000,000 ⁴	1929	4.67 ⁴
1928	218,000,000	1,414,000,000	8,050,000,000	1928	4.45
1927	266,000,000	1,509,000,000	7,776,000,000	1927	4.49
1926	260,000,000	1,365,000,000	6,344,000,000	1926	4.61
1925	323,000,000	1,399,000,000	6,223,000,000	1925	4.58
1924	288,000,000	1,398,000,000	5,593,000,000	1924	4.26
1923	206,000,000	1,063,000,000	4,303,000,000	1923	4.76
1922	237,000,000	1,101,000,000	4,313,000,000	1922	4.81
1921	215,000,000	1,208,000,000	3,576,000,000	1921	5.18
1920	130,000,000	683,000,000	3,634,000,000	1920	5.12
1919	103,000,000	691,000,000	3,588,000,000	1919	5.04
1918	41,000,000	296,000,000	14,368,000,000	1918	4.90
1917	60,000,000	451,000,000	9,984,000,000	1917	4.58
1916	70,000,000	457,000,000	5,032,000,000	1916	4.18
1915	81,000,000	498,000,000	5,275,000,000	1915	4.58
1914	42,000,000	320,000,000	2,400,000,000	1914	4.38

³By special permission, based upon sales reported by the Commercial and Financial Chronicle.

⁴Not final.

per cent more interest than this. Nothing could show more graphically the change which has occurred in interest rates during the past year than this tremendous difference in the rate which the Federal Government had to pay a year ago and the very low rate it is paying at the present time.

All of this, of course, means that if school districts are prepared to do so they can carry their indebtedness by means of temporary loans at a very low interest rate. Estimating the future trends is exceedingly difficult as they depend so much upon the course of business and the demands for money in other channels. The most reasonable estimate seems to be that there would be no great danger in using short-term loans at this time, as

TABLE IV
Average Yield of Long-Term Federal Government Bonds⁵

Past Twelve Months	Past Six Years
1930	Rate %
June	3.41 ⁶
May	3.44 ⁶
April	3.46
March	3.40
Feb.	3.50
Jan.	3.51
1929	
Dec.	3.46
Nov.	3.45
Oct.	3.67
Sept.	3.70
Aug.	3.72
July	3.67

⁵Taken from Federal Reserve Bulletin.
⁶Not final.

TABLE VI
Revised Index Numbers of Wholesale Prices⁹

Past Twelve Months			Past Six Years		
Month	All Com- modities	Building Materials	Year	All Com- modities	Building Materials
1930			1928	97.7	93.7
June	90.4 ¹⁰	94.3 ¹⁰	1927	95.4	93.3
May	90.5 ¹⁰	94.6 ¹⁰	1926	100.0	100.0
April	90.7	94.7	1925	103.5	101.7
Mar.	90.8	95.4	1924	98.1	102.3
Feb.	92.1	95.7	1923	100.6	108.7
Jan.	93.4	96.2			
1929					
Dec.	94.2	96.2			
Nov.	94.4	96.0			
Oct.	96.3	97.8			
Sept.	97.5	97.5			
Aug.	97.7	96.7			
July	98.0	96.7			

⁹United States Bureau of
Labor Statistics, 1926 = 100.

¹⁰Not final.

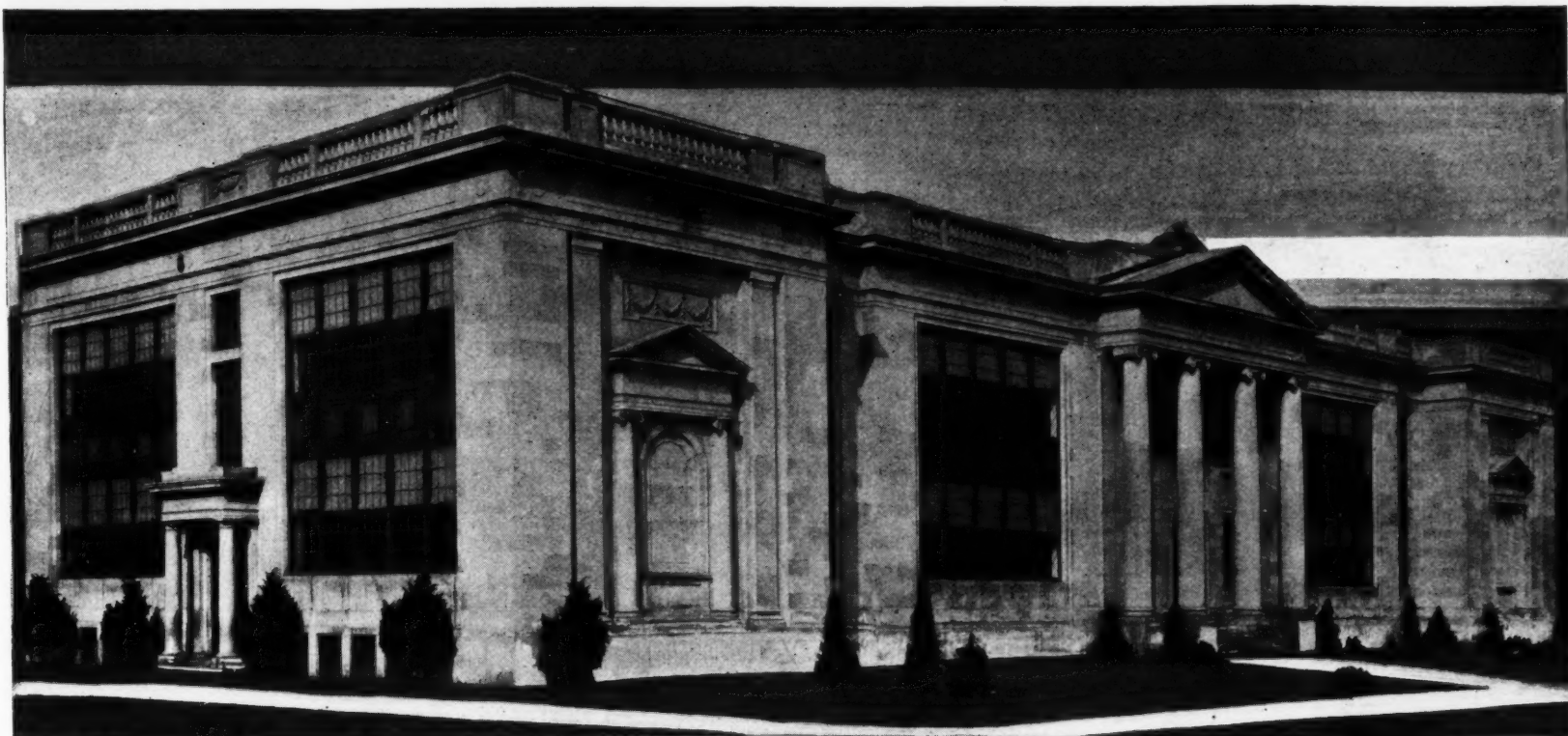
⁹United States Bureau of Labor Statistics, 1926 = 100.
¹⁰Not final.

the other hand, it should be entirely feasible to sell short-term notes just as the money is needed. The total school bonds sold during the month of May showed a very decided drop from the amount sold during April.

Table IV shows that the average yield on long-term Federal Government bonds is tending to work toward lower levels.

Table V shows again a declining tendency as far as the price of common stocks is concerned. The index reached a high point in April and has gradually declined since then. The table also shows that bond prices continue to rise slowly and in turn interest rates to fall.

(Concluded on Page 94)



St. Ann's School, Cleveland Heights, Cleveland, Ohio
Geo. Hunt Ingraham, Arch. W. J. Pierik, Gen. Contr.

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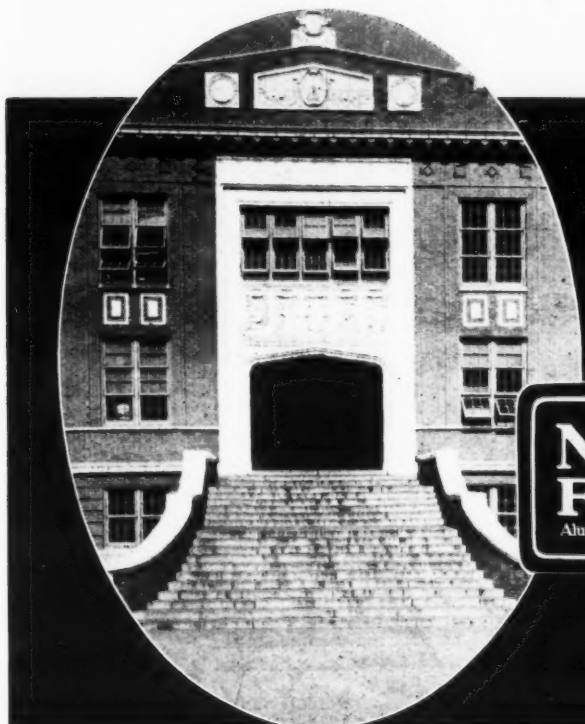
For over eight years Alundum Tile has seen hard service on the stairways and landings of this 1000-pupil Florida high school. Yet the tile shows not a sign of wear. Note the straight, even line of the nosing edge in the unretouched photograph at the right, taken only about a month ago.

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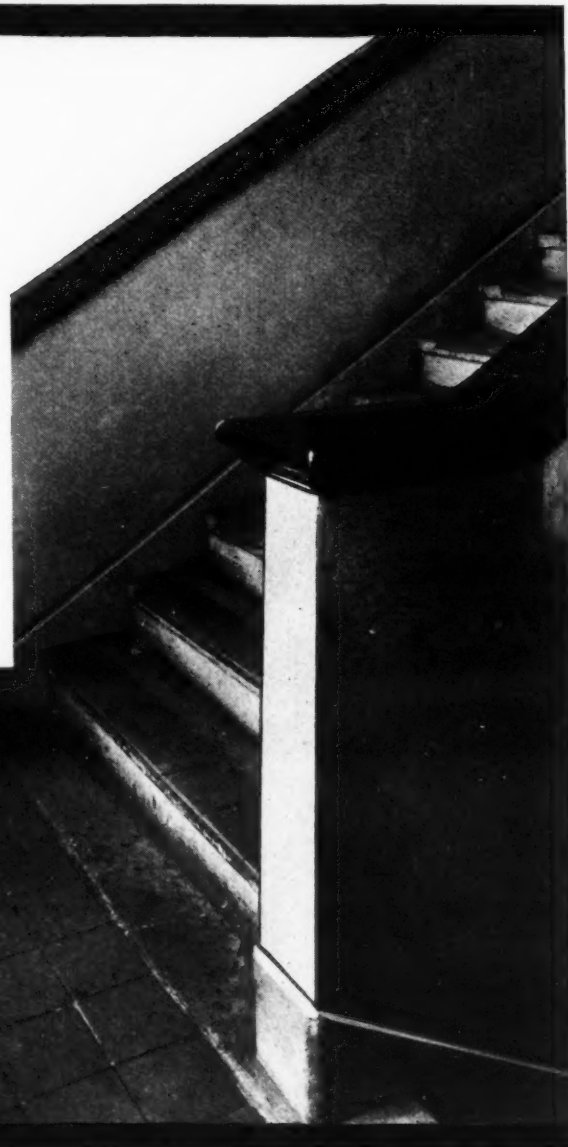
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Final Examinations

Roswell C. Puckett, Toledo, Ohio

In June, 1929, the final examinations in Toledo were begun on Thursday noon of the week before the close of school and were held in 1½-hour sessions over a period of 3 days. The remaining days were spent in marking papers and recording marks. Because of the emphasis placed on these extensive formal examinations and the time involved, there was considerable discussion among the high-school teachers and a committee was finally organized to study the problem. The inevitable questionnaire was used as a means of determining the practice in other schools. The questionnaires were sent to 100 large high schools in Ohio, Michigan, Indiana, and West Virginia. They were sent to the heads of the history departments as the committee members felt that these teachers would be interested in the problem and that this would secure satisfactory information without burdening the high-school office. Returns from 82 schools were tabulated by states. The following are the results as tabulated by the committee:

1. Do you have final examinations at the end of the school year?

	Yes	No
Ohio	31	11
Michigan	23	1
Indiana	9	4
W. Virginia	1	2
	64	18

2. Do you have final examinations at the end of the first semester?

	Yes	No
Ohio	32	10
Michigan	23	1
Indiana	9	4
W. Virginia	1	2
	65	17

3. If you do have final examinations, how long is the examination in each subject?

	45	50	60	75	80	90	100	105	120	over 120
Ohio	4	1		1	1	15			8	2
Mich.					1	10		1	10	
Ind.	2	1	2			2	1		1	
W. Va.						1				
	6	2	2	1	2	28	1	1	19	2

4. Are a certain number of days set aside for the final exams?

	Yes	No
Ohio	50	7
Michigan	22	2
Indiana	6	3
W. Virginia	1	5
	59	17

5. If so, how many?

	1	2	2½	3	3½	4	5
Ohio	1	7	2	12	2	3	3
Michigan		6	3	10	1	2	
Indiana		3		2			1
W. Virginia				1			
	1	16	5	25	3	5	4

6. Is all classwork dismissed at this time?

	Yes	No
Ohio	29	2
Michigan	22	
Indiana	4	4
W. Virginia	1	1
	56	7

7. How many days before the end of the semester do you have your last class recitation?

	none	1	1½	2	2½	3	3½	4	5	5½	6	7	8½
Ohio	3	6	1	4	3	5	1	6	7	1	2	1	1
Mich.		1		1		4		4	8		2	1	
Ind.		1		3		3		1	3				
W. Va.		1				1							
	3	9	1	8	3	13	1	11	18	1	4	2	1

8. How many days before the end of the semester do you have your last examination?

	none	1	1½	2	2½	3	4	5	6	Discretion of Teacher
Ohio	7	6	3	11	2	2				4
Mich.	1	6	3	4				2		
Ind.	2	1		5		2	1		1	
W. Va.						1				
	10	13	6	20	2	9	1	2	1	4

9. Is school dismissed for a few days the end of the semester to give teachers time to mark papers?

	Yes	No
Ohio	20	20
Michigan	19	5
Indiana	5	7
W. Virginia	3	1
	47	33

10. If you do not have any definite days set aside for final exams, do the teachers give the exams during their regular class periods?

	Yes	No
Ohio	11	2
Michigan	5	
Indiana	9	1
W. Virginia	3	
	28	3

The figures under Question 10 seem to disagree with those under Question 4. This is because some schools have definite days set aside, but they have hour periods and hold their examinations during the regular periods. Notations on the questionnaires indicate this.

11. In case you answer yes for No. 10, when may the teachers give their final exams?

	As they please	According to stated schedule
Ohio	7	2
Michigan	3	1
Indiana	6	2
W. Virginia	4	
	20	5

(Concluded on Page 74)

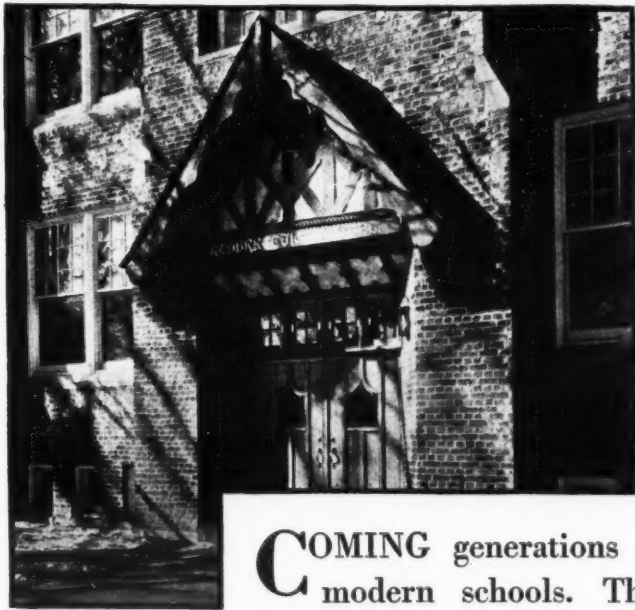
SCHOOLS ARE NOT BUILT FOR TODAY ALONE



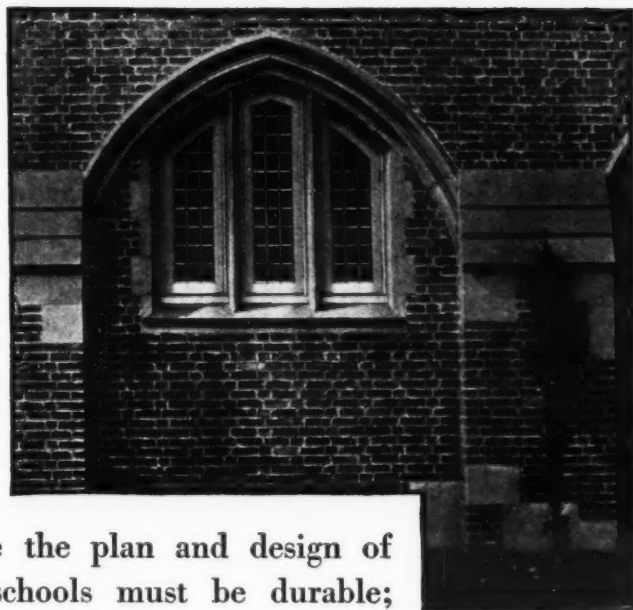
Halesite Public School, Huntington, Long Island, New York. A. B. Sammis & F. T. Cornell, Associated Architects, New York City, N. Y.



Wormleysburg School, Wormleysburg, Cumberland Co., Pa. Hasness & Albright, Architects, Harrisburg, Pa.



Resurrection School, Rye, New York. Murphy & Lehmann, Architects, Brooklyn, New York.



East Oakland High School, Oakland, California. Miller & Warneche, Architects, Oakland, California.

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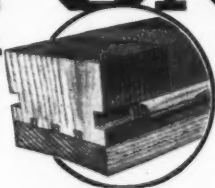
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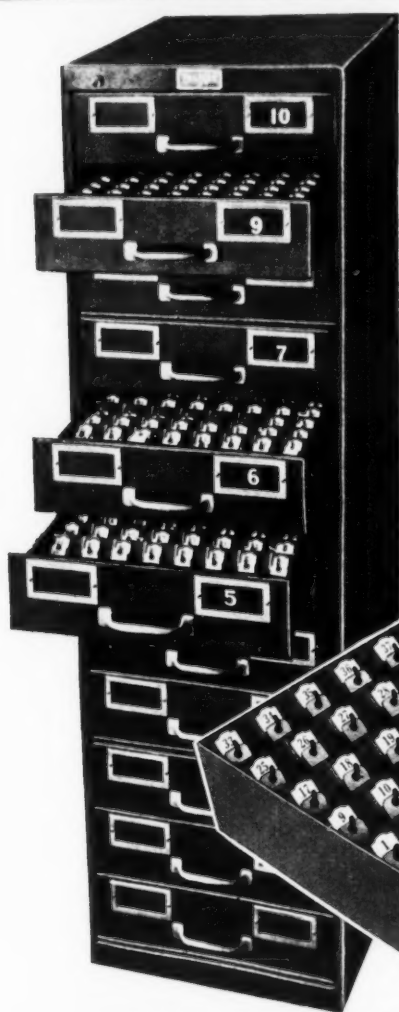
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*Leading School Architects specify
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IDENTIFIES
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Before your schools open for the new year see that the key problem in each of them is ended once and for all. The list of schools, from coast to coast, turning to TELKEE is increasing rapidly. The TELKEE Drawer Filing Cabinet and TELKEE Wall Cabinet, both here illustrated, are popular with schools. Select which best fits your requirements.

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Hookstrips — A unitary row of 8 hooks with label pockets. Hookstrips are welded into all TELKEE steel filing units.
Marker — A permanent identification tag (brass or fibre) which locks to key in a second, by pressure of thumb.
Receipt Holder — Used to replace borrowed keys upon Hooks.

"How Are You Selecting Your Staff, Mr. Superintendent?"

M. Eugene Mushlitz

The problem of selecting public-school workers has become more and more difficult as school expansion has increased. Probably every school superintendent has been flooded with applications each time that vacancies occur in his school system. Boards of education, in many cases, have felt that salaries were too high, considering the evident oversupply of candidates for school positions. Newspapers have advertised that the country is confronted with a large oversupply of teachers, and as a result salaries and tenure have been placed on dangerous ground.

Modern school administration places in the hands of the superintendent the right to nominate his school workers. Just what advantage is he taking of this power? The writer sent a questionnaire to every superintendent in cities ranging in population from 25,000 to 100,000. This questionnaire sought two different data; (1) how many principals, supervisors, and how many teachers in each school system, and (2) how many of these different workers now in his school system, he would be willing to have in a new system, if he were given absolute freedom in his selection.

This study revealed some interesting facts. Out of a total of 212 questionnaires, 140 returns were received. Eighteen of these replies could not be used because of indefinite answers to the questions. These 122 schools involved 2,399 principals, 839 supervisors, and 40,484 teachers. The superintendents concerned were willing to recommend 1,230 principals, 487 supervisors, and 22,889, or 51.22 per cent of their

principals, 52.08 per cent of their supervisors, and 56.53 per cent of their teachers.

From data collected in the study it was found:

1. There are too many teachers certified to teach.
2. Newspaper comment shows that the public believes that there is a large surplus of teachers and voices the solution of the problem by local selection.
3. There are not too many good teachers.
4. Teachers, principals, and supervisors are all about equally qualified to hold their respective positions.
5. Only slightly above 50 per cent of the workers now in school systems are qualified to hold their positions.

GOOD TEACHERS

We shall be able to know good teachers when we meet them face to face. And we shall have them whenever in sincerity we wish to have them, when we give them a proper reward and due recognition. And far more important than monetary reward (important as I concede that is) is the regard and esteem which they are entitled to receive. When splendid teachers are thought of as more important in an educational system than lofty buildings, or athletic fields, or equipment, then you will have them, and you will through seeing, know them.—Dr. Monroe E. Deutsch.

The superintendent of schools cannot afford to sit back and say that it is the fault of the teacher-training institutions. He is the responsible leader of education in his community and is in actual contact with the situation. He must analyze the problem, and study it from the standpoint of the mission of the school. He must remember that the primary function of the school is the education of the child. Schools are not run for charity. They do not exist to give the local applicant a job. The daughter of the local mayor, or of the clergyman, has no place in his system, if she is not the best possible candidate available for the position.

Upon your shoulders, Mr. Superintendent, rests the obligation of getting the best talent possible. You may say that you are hemmed in by such a thing as teacher tenure. Laws are made by the parents of your schools. Tenure should be made absolutely safe for the efficient teacher and absolutely unsafe for the inefficient teacher. You can voice your appeal to the teacher-training institutions, who are battling against large numbers enrolled, and you can urge them to select only those candidates for the profession of teaching who can pass a selective test.

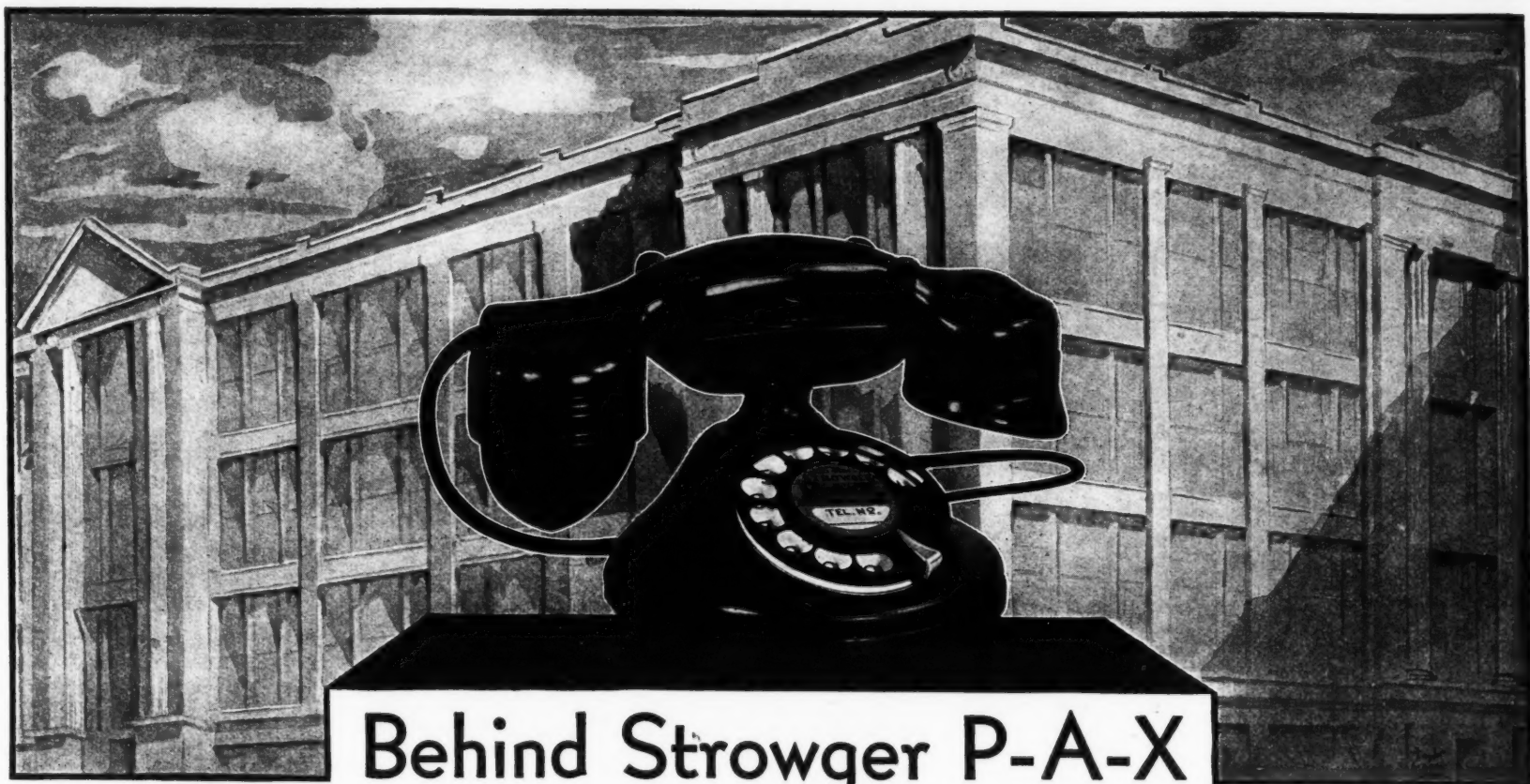
Again, your school, through your local press, can show that the school exists only for the education of the children and not to give the local applicant a position. All in all, Mr. Superintendent, it is up to you to lead the way in the solution of this problem.

♦ SUPT. W. C. WOODWARD, of Junction City, Ohio, has been reelected for the school year.

♦ PROF. HENRY POTTS, of New Straitsville, Ohio, has been reelected for a two-year term.

♦ SUPT. GEORGE WILSON, of Kalida, Ohio, has been reelected for another year.

♦ MR. P. A. LAUTERBACH, of Sac City, Iowa, has been reelected for another year.



Behind Strowger P-A-X

Long Manufacturing Experience—World-Wide Usage

CONSIDERATION of interior telephone equipment for any school project involves the seeking out of those facts upon which can be based an estimate of **QUALITY**.

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More than four million automatic telephones of the Strowger type have been made and installed throughout the world and almost 2,000 P-A-X systems made by this company are now serving the leaders of business and industry in the United States.

The telephones and switches used in connection with Strowger P-A-X are exactly the same in design and construction as those used for public service. They are built to meet exacting needs of the world's leading telephone administration. Here is what Strowger P-A-X will do in school use:

- Relieve the drudgery of old-time methods of interior communication—
- Permit more time at the desk—
- Render immediate, accurate automatic telephone service to all departments and class rooms—
- Permit quick absentee check-up and other routine, making school supervision more thorough.

Strowger P-A-X serves teachers as well as principals, and office employees as well as all other members of the school staff.

We shall gladly make a survey of any school project calling for interior telephone equipment and recommend accordingly. Bulletin 1026 gives further details. A copy is yours for the asking.

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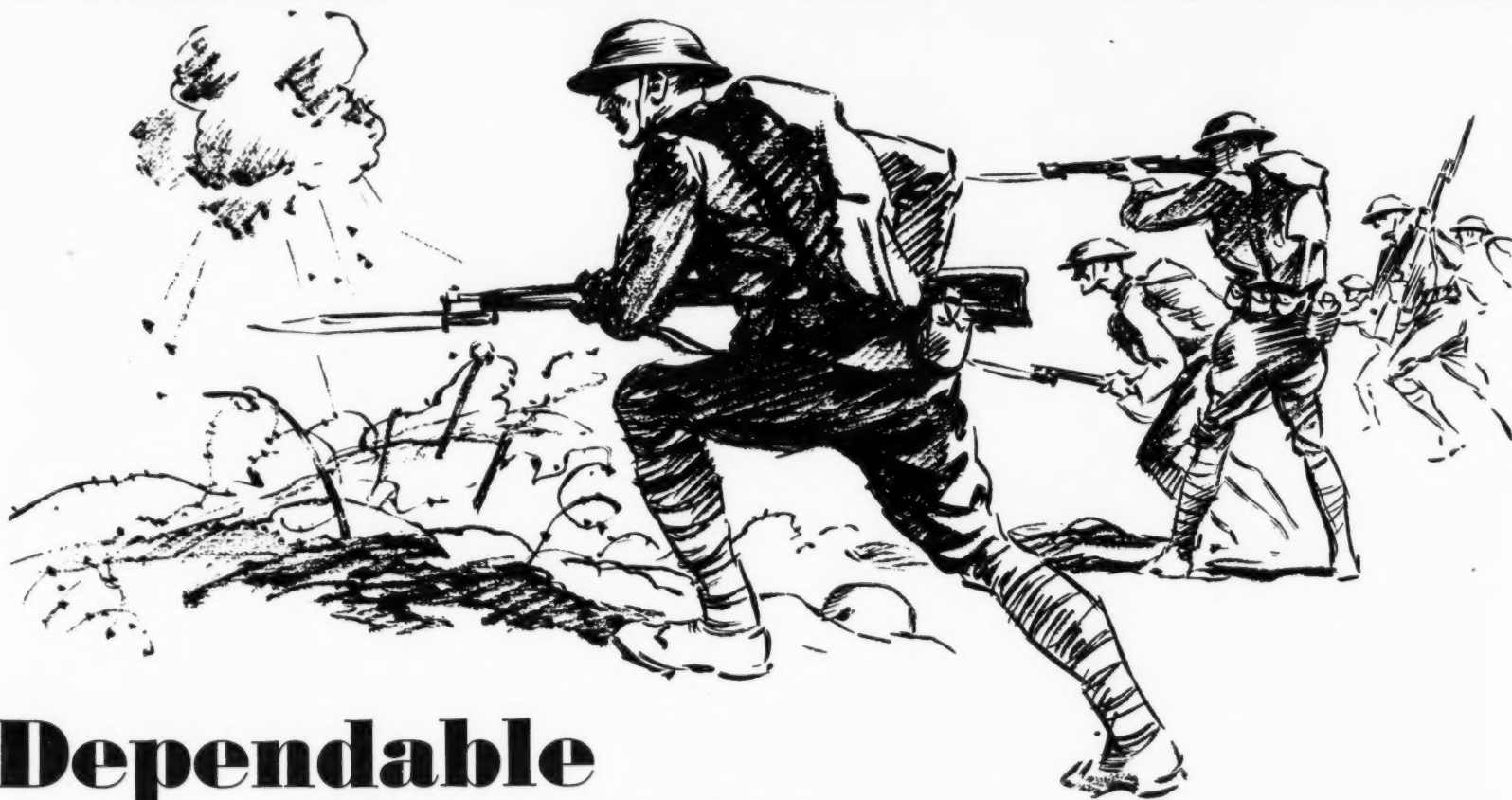
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- Tele-Chek Systems (for Theatres) Watchmen's Supervisory Systems
- Railway Communication Equipment
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The twenty-sixth W. & T. Chlorinator to be installed by the New York Board of Education during the past seven years is now in service on the DeWitt Clinton High School, a recently completed unit of the Board of Education's \$350,000,000.00 school program.

Surely a convincing argument in favor of equipping your school pool with a W. & T. Chlorinator.

Locker Room, Locker, and Padlock

Perley W. Lane, Vice-Principal, Stamford High School,
Stamford, Connecticut

Hand in hand with modern developments in the construction of school buildings, the problem of providing proper repositories for pupils' clothing has received attention. School boards, superintendents, and principals realize that it is no longer the fashion to give a pupil a coat hook. The school of today offers a locker to insure the safety of the pupil's belongings, and to facilitate the pupil's convenience and satisfaction.

Of general interest to school officials is the effect of the locker system once it is installed. Does it work, for example? In a large school is it possible to administer the system without too much trouble? In a small school is the locker worth the price? Is a locking device practicable? Do pupils receive a real value from a locker system? What represents adequate provisions? How are lockers and padlocks distributed? These and many other similar questions are of interest to all school administrators.

The Stamford High School, opened in September, 1928, was completed at a cost of one and a half million dollars. The present enrollment total is 1,750 boys and girls; the capacity of the building is 2,500 pupils. Locker-room provisions take the form of 11 locker rooms placed at convenient points throughout the building. Ten of these rooms 31 by 21 ft., contain about 170 steel lockers each, arranged in double tiers. These lockers, measuring 36 by 12 by 9 in., are mounted with convenient latches to permit the use of individual combination padlocks. In the basement of the building there is a large room equipped with 600 lockers. In addition, the boys' and girls' gymnasium dressing rooms are fitted with the standard lockers described in the foregoing and with small lockers measuring 12 by 12 by 9 in.

The Locker Room

To begin with, it is important to allocate certain home or registration rooms to certain locker

rooms. This must be done with some care, since boys and girls use different locker rooms and since boys and girls are not always equally distributed in home rooms. It sometimes happens that home rooms contain boys only or girls only. For example, if within a convenient radius of Girls' Locker Room 22 and Boys' Locker Room 25 there are 140 girls and 185 boys, some adjustment is obviously necessary, since each of these rooms will take care of 170 individuals.

Not infrequently it is true that the shorter distance from any given home room to any given available locker room is not found on the same floor. By actual trial it was found that our basement locker room was nearer the third floor section under consideration than a certain available locker room located on the third floor itself. Since hundreds of pupils must walk the distances allotted to them at least twice each day, every care should be taken to insure an economy of steps and thus of time.

Therefore, *allot locker rooms with care.*

In opening a new building it is wise to read the architect's blue prints with care. Floor plans will reveal the general locations with relation to adjoining rooms; they will indicate distances which pupils will be required to cover; they will show traffic problems before they arise. The next step is to draw rough floor plans showing the position of locker rooms. On these plans the position of the locker tiers may be indicated as well as the serial numbers of lockers.

With this information at hand one should then utilize a scratch form with these headings arranged horizontally:

Registration Rooms	Boys
Girls	Locker-Room Number
Locker-Room Number	Locker-Room Capacity
Locker-Room Capacity	Serials Used
Serials Used	Serials Not Used
Serials Not Used	

This form indicates that a certain number of girls and of boys from a certain *section* of the building will go to certain locker rooms. It shows also that certain lockers will not be utilized or that lockers will be needed.

Scratch Form No. 2 requires more attention and must be accurate. Information appearing on this form will be mimeographed in part and sent to teachers. Hundreds of lockers will be assigned, in our case from 45 registration rooms. The headings arranged horizontally are as follows:

Registration Room...128	Girls' Locker Room...14
Capacity70	Serials Used.....442-485
Division2AC	Boys26
Pupils70	Boys' Locker Room...15
Girls44	Serials Used.....519-544

Translated, the above means this: Room 128, a division of sophomore college-preparatory pupils, is filled to capacity with 70 pupils. Forty-four of these are girls who will occupy Locker Room 14 and be assigned lockers numbered from 442 to 485. The teacher in charge of 128 will assign these lockers. The 25 boys will, of course, occupy Locker Room 15 and be assigned lockers numbered from 519 to 544.

In working out these distributions it is essential that each locker room have a few unoccupied lockers. It frequently happens that new pupils appear or that old pupils come after school has opened or that a pupil's name on a class list is masculine in form and feminine in actuality. Unless a home-room teacher can conveniently substitute, it is the better plan to give the teacher in charge of the locker room a few unoccupied lockers for distribution in cases of emergency.

Locker-Room Teachers

For a number of reasons it was thought wise to place teachers in charge of locker rooms. Experience has shown that there are a variety of opportunities to help in a locker room. In making these assignments to teachers, every attempt was made to consider a teacher's proximity to a given locker room and a teacher's program of school duties. The duties of these teachers will be noted as the reader proceeds.

The matter of entrance and exit gave us food for thought. There was the immediate temptation

Schoolmen Should Investigate



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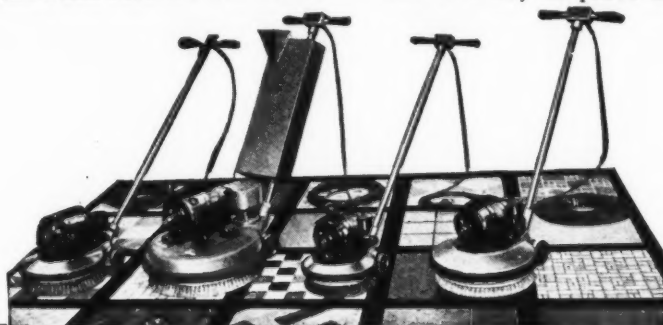


SCRUBBING

With the old-fashioned mop and scrub brush rapidly losing caste, it is time for the modern schoolman to start investigating modern methods of floor cleaning. Up-to-date sanitation standards demand it. No longer is it satisfactory just to keep the floors "wiped up." They should be kept glistening, and a Hild Floor Machine will do it in a quarter of the time and better than the best scrubwoman could do it.

There are four models of Hild Floor Machines—a size for every floor area and purse. The Hild Floor Machine will scrub, polish, wax, sandpaper and refinish with a thoroughness that is really remarkable.

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Consider the fact that the brush on the Hild Floor Machine revolves at the rate of 150 revolutions per minute and that the full weight of the machine rests directly on the brush at all times. There is no let-up, no time taken for tired arms to rest.

The best way to prove the practical value of the "Hild" is to give it a trial on your own floors. Compare the results with the results you are now getting. See for yourself how much of a saving it means to you. Watch the machine operate and see how efficiently and economically it enhances the appearance of your floors. Write for a folder and our free demonstration offer.

108 W. Lake St., Chicago, Ill.

to require pupils to use one prescribed entrance and one prescribed exit. On the other hand consigned as we were to the principle of free passing and to a building of wide floor spaces, it occurred to us the pupils would converge from many directions. Another factor which simplified our problem was the fact that the pupils were dismissed in three waves of 600 pupils each. Since each wave left from all parts of the building the locker-room entrance-and-exit problem was no problem at all. Our only admonition was simple—*Keep to the right.*

The question as to whether locker rooms should be locked during the day requires a decision. In our building the first impulse was to lock these rooms during the interval between assembling and dismissal. It was thought that such a practice would give pupils better protection in those cases where padlocks were not utilized. There were practical difficulties in the way however. Chief of these was the matter of school lunches. Pupils kept their lunches in lockers. From the first we have compromised by locking these rooms immediately after the cafeteria period and unlocking at the first dismissal bell. One difficulty should be anticipated if this plan is used. Not infrequently pupils are excused during the day and must necessarily enter a locker room. Since most of the locker-room teachers are in the classroom, the work of unlocking locker rooms in these instances must be handled by the school office.

At this point it may be well to suggest that those schools which have student government or student traffic organizations may safely assign much of the locker-room supervisory work to responsible pupils. Such a system has a double value: It reduces teacher detail work and increases pupil responsibility.

The Locker

Because the problem of assigning individual lockers is so much a part of the problem of allocating locker rooms it is difficult to treat these two phases of the subject individually. Much has been suggested with regard to the distribution of the locker. It has been pointed out that the home-room

teacher is given certain lockers for her pupils. These she assigns to pupils. It was our experience that this method disposes of the work quickly and efficiently.

Only two steps were necessary to complete this work. The first was to place on teachers' class lists the serial numbers of the lockers to be assigned together with the locker-room numbers; the second was to place in teachers' hands a mimeographed form with five headings and three suggestions. These were the headings arranged horizontally:

Lockers for Girls.....	Room 15
Registration Rooms.....	Rooms 106-124
Teachers' Serials.....	678-841
Teacher in Charge.....	Mr. Edwards
Unassigned Serials.....	842-881

The information just cited means this: All girls in Rooms 106 to 124 use Locker Room 15. Teachers in these rooms should assign serials as indicated on class lists and falling within serials 678 to 841. Mr. Edwards is in charge of Room 15 and has serials 842 to 881 to assign late arrivals, transfers, and the like.

The three suggestions on this mimeographed form follow:

1. Locker-room teachers assign lockers when

THE FUTURE SCHOOL EXECUTIVE

I confidently believe that we are rapidly approaching the time when our public will demand that the men who are to exercise the large responsibility intrusted to state, county, and local superintendents of schools shall have had training equivalent to at least that which we require in the professions of medicine and law. The need for a sound liberal education and for a prolonged period of professional training is greater for the man who would administer public education than for those who would engage in the private practice of law or medicine.—George D. Strayer.

home-room teachers have used their entire allotments.

2. Home-room teachers should supply accurate lists of locker assignments to those teachers in charge of locker rooms.

3. When padlocks are distributed, home-room teachers should keep tags with combinations printed thereon. These tags are then to be given to the locker-room teacher.

No mention has been made of the lockers in the gymnasium. From the start the gymnasium instructors have been placed in charge of their lockers to handle as they deemed best. Our gymnasium dressing rooms are equipped with large and small lockers. The large locker is for the temporary use of the class which happens to be on the floor. When this class puts on street clothes it places gymnasium suits in the small lockers permanently assigned. The large lockers are then empty and in readiness for the next class. Consideration should, of course, be given to members of athletic teams, and large lockers should be provided for football and baseball players.

The Padlock

We have adopted a combination padlock with two solutions—that of sight and that of clicks. From the start we used the combination by sight. Only three movements are necessary to open the lock. There is a supply of 5,000 locks on hand, the combinations being different in every case. It was a source of surprise to find that so many hundreds of combinations could be distributed and imparted so easily.

Our first problem concerned the conditions upon which padlocks would be issued. It was finally decided to ask for a dollar deposit as a guarantee against loss. One might imagine that parents would complain or that many could not afford the temporary money advance. In our community the reverse was true.

The padlock responsibility in our school is placed in the hands of one person. This is altogether proper. The fact that a money deposit was required meant that between one and two thousand dollars would be handled in dollar units. It is

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A striking contrast between the two sides of this picture! We think it is a realistic representation of the tremendous improvement in appearance that cheerful modern floors will bring to your schoolrooms. The color shown is apple green, one of several two-tone effects now available in *Sealex Jaspé Linoleum*. There are many other types of Bonded Floors, equally colorful and attractive, that will aid you in modernizing your school at low cost.

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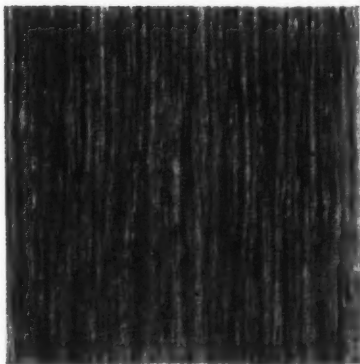
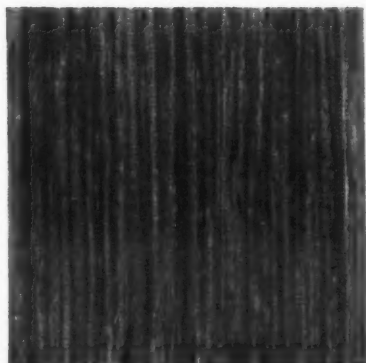
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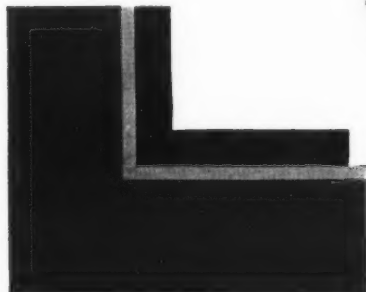
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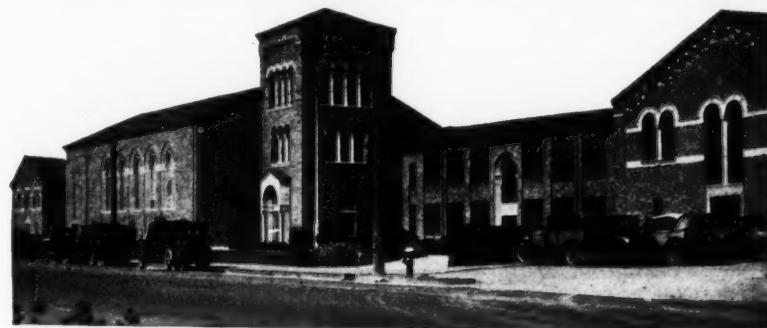
Instant contact with any teacher, classroom, party or branch of the school organization relieves the Principal of much of the heavy load of routine administration. It permits constant supervision, and simplifies the direction of school activities.

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also true that no one person could handle each transaction with any degree of speed. To place and centralize responsibility and at the same time to distribute padlocks with good results a form was devised. It was called a "Padlock Record Sheet." There were 7 headings horizontally arranged with 26 lines beneath. The headings were as follows:

Number
Name (Last name first)
Date Issued
Padlock Number
Locker Number
Registration Room
Date Returned

Registration teachers placed on these sheets the names of pupils who desired locks. Careful instructions were issued that teachers should under no circumstances forget that every padlock transaction was a cash transaction. Once a teacher had determined her requirements, padlocks were given to her from the vice-principal's office and charged against her name. Within a few days she returned the padlock-record sheet together with a dollar against each pupil's name. The teacher's account was then balanced, the deposits banked and the record of the transaction kept in the vice-principal's office.

The method as outlined worked very well. Perhaps there was considerable detail work directed toward the vice-principal's office at a time of the year when everyone is busy. But the result justified the work. All of the money was promptly tabulated and deposited; all of the records for every room were on file in one place; all the transactions were necessarily on a cash basis; all later transactions were handled by the vice-principal who had all of the records in his possession. It is possible also to know rather exactly how the work of distribution is progressing and how teachers are handling their assignments.

What appeared at first thought to be rather a complex problem turned out to be a relatively simple one. Jane went through these steps:

1. Brought a dollar.
2. Received a padlock from her home-room teacher.
3. Copied from the tag her combination.

4. Practiced her combination.
5. Went to the teacher in charge of the locker room if she had trouble opening her lock.
6. Brought the lock to the office when she transferred.

It has been stated that padlocks have attached tags which indicate the combination. These are retained by home-room teachers and turned over to teachers in charge of locker rooms who may refer to them when, as occasionally occurs, a pupil forgets his combination. There is also a master list which reveals the combinations of all padlocks. Since every padlock has a number stamped upon it, the task of opening a padlock, even though the combination is lost, is very simple. The master list is always kept in the school safe.

A combination padlock appears to have several advantages. There is no key to be lost. A forgotten combination can always be quickly recalled. A broken padlock can be replaced since it is a loose rather than a built-in padlock. In itself it is attractive to pupils who invariably enjoy what resembles a puzzle. Combination locks present a good appearance in locker rooms. They place upon the pupil the entire responsibility for his belongings. Parents appear to approve of them.

We did not require pupils to use padlocks. We point out their advantages and urge their use. There is no drive, however, and the whole transaction is quite voluntary. At the time of writing, 1,585 padlocks were used in this school. The total will undoubtedly increase. We have forbidden the use of an outside lock. Obviously an alien lock

places us in the position of being unable to assist a pupil. We have encountered little difficulty in enforcing this regulation.

The distribution of lockers and padlocks requires time and system. As in all problems involving many people, the first essential is to place the responsibility in the hands of one person. The second essential is to devise simple and foolproof methods. Plan with an eye to these considerations: economy, safety, system, convenience, and service.

FLORIDA TAX SCHOOL-DISTRICT BONDS BACKED BY UNLIMITED TAX

Several years ago, the special tax school district No. 1 of Duval county, Jacksonville, Florida, sold an issue of \$2,500,000 in bonds with the approval of John C. Thompson.

Recently, a banking house secured from the New York Banking Department a ruling that these bonds are legal for savings banks. The determination of the legal status of the bonds of the district rested upon the power of the district to levy unlimited taxes to pay the principal and interest on the bonds.

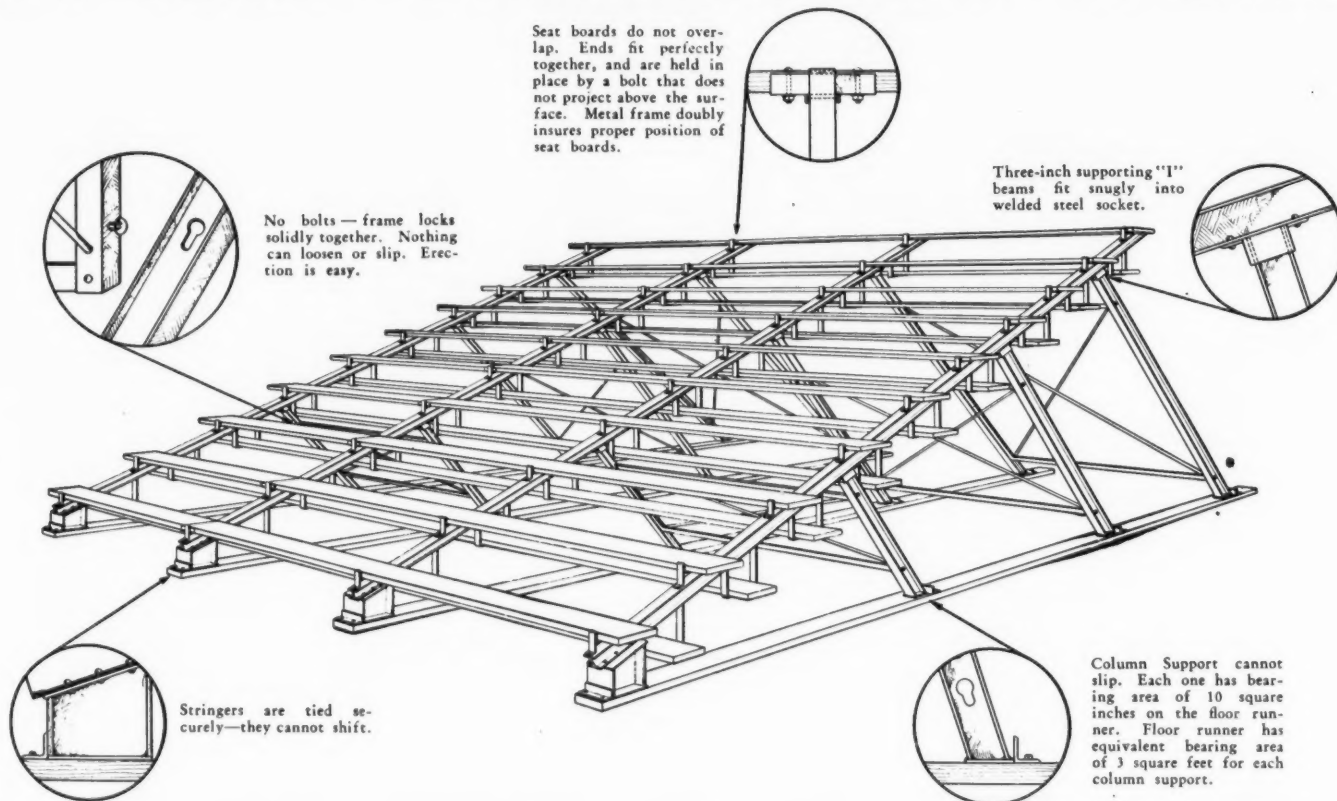
In order to satisfy the banking department on this score the bankers obtained an opinion from a law firm which is interesting, not merely in connection with the specific issue of bonds under consideration, but with respect to the taxing powers of special tax school districts in the state of Florida under the constitutional amendment of 1924 and the decisions of the courts.

The lawyers ruled that, under the circumstances, there can be no question that since November, 1924, the special tax school districts of the state have possessed the power to levy unlimited taxes for the payment of their bonded debts. The \$2,500,000 in bonds, issued by the special tax school district No. 1 were voted after the constitutional amendment was in effect. There is no limitation in rate or amount, therefore, upon the taxes which may be levied for the payment of the principal and interest of such bonds. Such taxation may be levied upon all taxable real and personal property in the district in an amount sufficient to pay such principal and interest at maturity.

THE VALUE OF TEACHING

Teaching needs no encomium. It is superior to manufacturing, for it deals with the human intelligence and spirit and not with steel and iron. It is superior to merchandising, for it creates and develops. It is superior to lawmaking, for men are molded infinitely more by teachers than by laws on the statute books.—Dr. Monroe E. Deutsch.

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School-Law Notes

PRIVATE SCHOOLS AND ACADEMIES

A suit brought by a school principal for a breach of a contract against the defendants who were trustees of a school belonging to an association of churches has been held against the defendants individually.—*Pelotte v. Simmons*, 152 Southeastern reporter 310, Ga. app.

A petition for a breach of a contract by a principal of a school belonging to an association of churches was held not demurrable for failure to allege incorporation of the school or association and the defendants' title to the property as trustees.—*Pelotte v. Simmons*, 152 Southeastern reporter 310, Ga. app.

A contract for the employment of a school principal was held made by the trustees in a representative capacity not in individual capacity as sued.—*Pelotte v. Simmons*, 152 Southeastern reporter 310, Ga. app.

The defendants, though exceeding authority, were held not liable for the principal's salary under a contract made as school trustees.—*Pelotte v. Simmons*, 152 Southeastern reporter 310, Ga. app.

School Lands and Funds

As respects its application to schools, the term "common" is equivalent to all public schools without reference to the grade of the schools (Mont. constitution, art. 10, § 1; art. 11, §§ 1, 6, 7; art. 13, § 6).—*State v. Dawson County*, 286 Pacific reporter 125, Mont.

A constitutional provision for the public schools is mandatory, and necessary expenses do not require a vote of the people (N. C. constitution, art. 9, §§ 1, 3; N. C. public loc. laws of 1927, c. 231).—*Julian v. Ward*, 152 Southeastern reporter 401, 198 N. C. 480.

A general assembly may either by state appropriation, or through the county as the administra-

tive agency of the state, effect a mandatory duty of financing the public schools.—N. C. constitution, art. 9, §§ 1, 3).—*Julian v. Ward*, 152 Southeastern reporter 401, 198 N. C. 480.

Creation and Alteration of Districts

An act authorizing the consolidation of school districts was held not invalid, because it provided no method for the appointment of directors after consolidation (Ark. acts of 1927, No. 156, p. 549; Crawford & Moses' Digest §§ 8847, 8953).—*Special School Dist. No. 60 v. Special School Dist. No. 2*, 25 Southwestern reporter (2d), 443, Ark.

The legislative power to authorize the formation or the dissolution of school districts is plenary, provided the contract obligations are not impaired.—*Special School Dist. No. 60 v. Special School Dist. No. 2*, 25 Southwestern reporter (2d), 443, Ark.

A school district embracing lands wholly within one county could, under the statute, extend the boundaries to include contiguous territory in the adjoining county (Tex. revised statutes of 1911, art. 2865).—*Carlton Independent School Dist. v. Jordon*, 25 Southwestern reporter (2d) 610, reversing judgment (civ. app.) 9 Southwestern reporter (2d), 384, Tex. com. app.

A school board, in creating a consolidated school district, cannot include territory therein other than that set forth in the petition (Heminway's code of 1927, § 8735).—*Board of Supervisor of Calhoun County v. Young*, 126 Southern reporter 469, followed in *Crowson v. Young*, 126 Southern reporter 470, Miss.

In determining whether the county board acted unreasonably in transferring land from one school district to another, the territory affected is the territory of both districts.—*In re Consolidated School Dist. No. 16*, Blue Earth County, 229 Northwestern reporter 585, Minn.

An order consolidating school districts as affecting the bonds of an independent district included within the consolidation was held not to impair the outstanding obligations of the existing school district (Ark. acts of 1927, No. 156, p. 549).—*Special School Dist. No. 60 v. Special School Dist. No. 2*, 25 Southwestern reporter (2d), 443, Ark.

School-District Government

Boards of education are not subject to, or controlled by, municipal authorities.—*Board of Education of City of Schenectady v. Dibble*, 240 N. Y. S. 422, N. Y. Sup.

A board of education had the authority to increase the salaries of administrative and clerical employees, notwithstanding the increases were not specified in the annual estimate submitted to the city authorities (N. Y. education law, § 868, subd. 2, 877, subds. 4, 10, and 887).—*Board of Education of City of Schenectady v. Dibble*, 240 N. Y. S. 422, N. Y. Sup.

The failure of a school treasurer to require security from the depository of school money could be considered in determining whether the treasurer acted in good faith, and with due diligence.—*Board of Education of Independent School Dist. of City of Huron v. Whisman*, 229 Northwestern reporter 522, S. Dak.

School-District Property

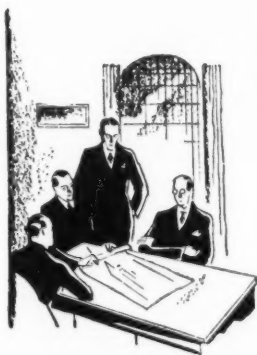
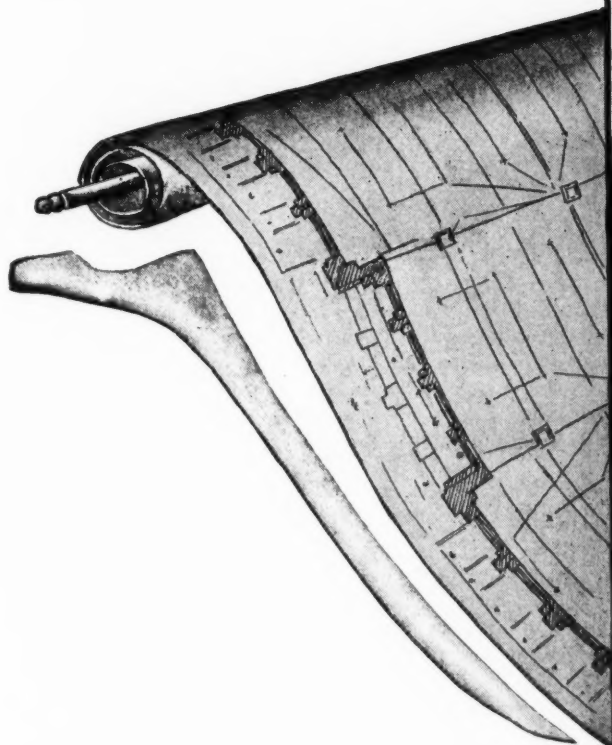
A school district forfeited its title by abandoning land for school purposes, where the deed provided for a reversionary interest if abandoned (Ky. statutes, § 4437).—*Webster County Board of Education v. Gentry*, 24 Southwestern reporter (2d) 910, 233 Ky. 35, Ky.

Where the deed provided for reversion on the abandonment of land for school purposes, a school board lost the right to remove the improvements by abandoning the property (Ky. statutes, § 4437).—*Webster County Board of Education v. Gentry*, 24 Southwestern reporter (2d) 910, 233 Ky. 35, Ky.

The common council had no powers respecting the transfer of school property from the board of education to the board of vocational education (Wis. statutes of 1927, § 62.11 (5), 40.53 (1) (6), 40.16, and 41.15 (1) (7)).—*City of Manitowoc*

(Concluded on Page 84)

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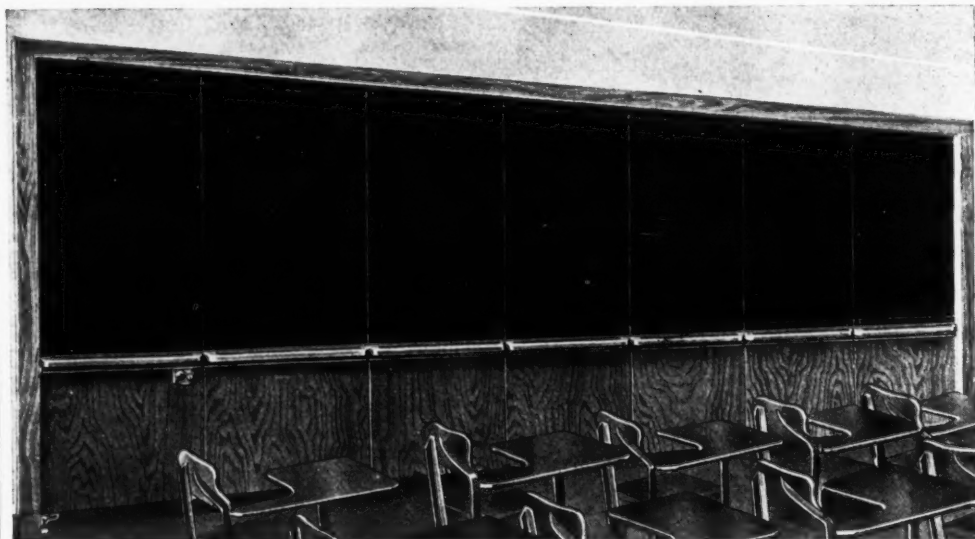
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(Concluded from Page 82)

v. Board of Education of City of Manitowoc, 229 Northwestern reporter 652, Wis.

A board of education may lease a school building for a period extending beyond the school term, but it cannot contract to maintain a particular class of school.—Board of Education of Viola Normal School v. Board of Education of Warren County, 24 Southwestern reporter (2d), 889, 160 Tenn. 351, Tenn.

As an exception to powers given the common council, the board of education has control over the school buildings (Wis. statutes of 1927, § 62.11 (5), 40.53 (1) (6), and 40.16).—City of Manitowoc v. Board of Education of City of Manitowoc, 229 Northwestern reporter 652, Wis. The provision in the Wisconsin laws requiring the existing school buildings to be used as far as practicable for vocational education imposed the duty on the agency having control of school property (Wis. statutes of 1927, § 41.15 (1) (7)).—City of Manitowoc v. Board of Education of City of Manitowoc, 229 Northwestern reporter 652, Wis.

A remedy of materialman and the liability of the surety on a public contractor's bond are limited by the statute (Acts of the 38th general assembly of Iowa, c. 347, as amended by the acts of the 39th general assembly, cc. 28, 147).—Queal Lumber Co. v. Anderson, 229 Northwestern reporter 707, Iowa.

No contractual obligation existed, where the seller furnished the dealers for the school building without a contract complying with the statute (Calif. political code, § 1612, as amended by the statutes of 1917, p. 204).—Strauch v. San Mateo Junior College Dist. of San Mateo County, 286 Pacific reporter 173, Calif. App.

A seller may recover the value of the property furnished a school district, where an attempt to comply with the statutory provisions was made and the district has used the property.—Strauch v. San Mateo Junior College Dist. of San Mateo County, 286 Pacific reporter 173, Calif. App.

A seller furnishing a school district electric heaters without compliance with the statutory requirements, where heaters could be removed without damage to the building, is held entitled to

recover the property (Calif. political code, § 1612, as amended by the statutes of 1917, p. 204).—Strauch v. San Mateo Junior College Dist. of San Mateo County, 286 Pacific reporter 173, Calif. App.

A contract irregularly made by the school directors may become binding on the district by a subsequent ratification.—Beers v. Lasher, 229 Northwestern reporter 821, Iowa.

A resolution of the board of directors of a school district is held to be complete ratification of previous acts of the directors in employing an accountant and attorneys for the district.—Beers v. Lasher, 229 Northwestern reporter 821, Iowa.

School-District Taxation

Expense estimates furnished the city authorities by the board of education are merely for the purpose of supplying the city authorities with information to aid in determining the total amount to be appropriated. (Education Law § 877, subds. 4, 10).—Board of Education of City of Schenectady v. Dibble, 240 N. Y. S. 422.

The board of education's expense estimates submitted to the city authorities are not final and unalterable (N. Y. Education law, § 877, subds. 4, 10).—Board of Education of City of Schenectady v. Dibble, 240 N. Y. S. 422.

The city authorities have no concern in items going to make up estimate made by a board of education for expenses.—Board of Education of City of Schenectady v. Dibble, 240 N. Y. S. 422.

A contract to purchase the bonds of a school district, agreeing to pay a stated sum therefor, is held binding on the tender thereof, though not tendered within the specified time.—Dallas Trust & Savings Bank v. Wortham Independent School Dist., 25 Southwestern reporter (2d), 174, Tex. Civ. App.

The sinking fund is to be used to pay interest coupons, bonds, and judgments against the district in order to be named (Okla. constitution, art. 10, § 28).—McMahan v. Board of Education of Oklahoma City, 285 Pacific reporter 953, Okla.

The legislature has full and complete power in the matter of general taxation for the support of the common schools (Ark. constitution, art. 14, § 3).—Special School Dist. No. 60 v. Special

School Dist. No. 2, 25 Southwestern reporter (2d) 443, Ark.

Teachers

A school teacher having a valid contract need not seek other employment in mitigation of the damages from a breach of the contract (Iowa code of 1927, § 4229).—James v. School Twp. of Troy in Iowa County, 229 Northwestern reporter 750, Iowa.

A school teacher could recover her salary, although she had not attended the school after the second week, where no scholars appeared.—James v. School Twp. of Troy in Iowa County, 229 Northwestern reporter 750, Iowa.

The admissibility of evidence on a hearing of charges against a teacher and a sufficiency to warrant her dismissal should have been raised on an appeal to the commissioner of education (N. Y. Education law, § 890).—Bronson v. Board of Education of City of Binghamton, 240 N. Y. S. 291, N. Y.

A teacher's waiver of a salary claim as a condition for her reinstatement did not affect her right to prior service allowance in determining her pension (Teachers' retirement law, Greater New York Charter, § 1092, subd. M. 1 (c), as reenacted by the N. Y. laws of 1917, c. 303).—In re Everitt, 240 N. Y. S. 335, N. Y. Sup.

Truancy Officers

A truant officer is held entitled to the benefits under an amendment to the teachers' annuity law, passed during a leave of absence without pay (Wis. laws of 1923, c. 270).—Fritzke v. Public School Teachers' Annuity and Retirement Fund Trustees, 229 Northwestern reporter 543, Wis.

The right to an annuity was established on the date the truant officer filed the application and made the required deposit, though the application was refused and the deposit returned (Wis. laws of 1923, c. 270).—Fritzke v. Public School Teachers' Annuity and Retirement Fund Trustees, 229 Northwestern reporter 543, Wis.

A truant officer making repeated applications is held not guilty of laches in making applications for an annuity.—Fritzke v. Public School Teachers' Annuity and Retirement Fund Trustees, 229 Northwestern reporter 543, Wis.

School Executives' National Survey Supplied Design Data for this PAM Amplifier System

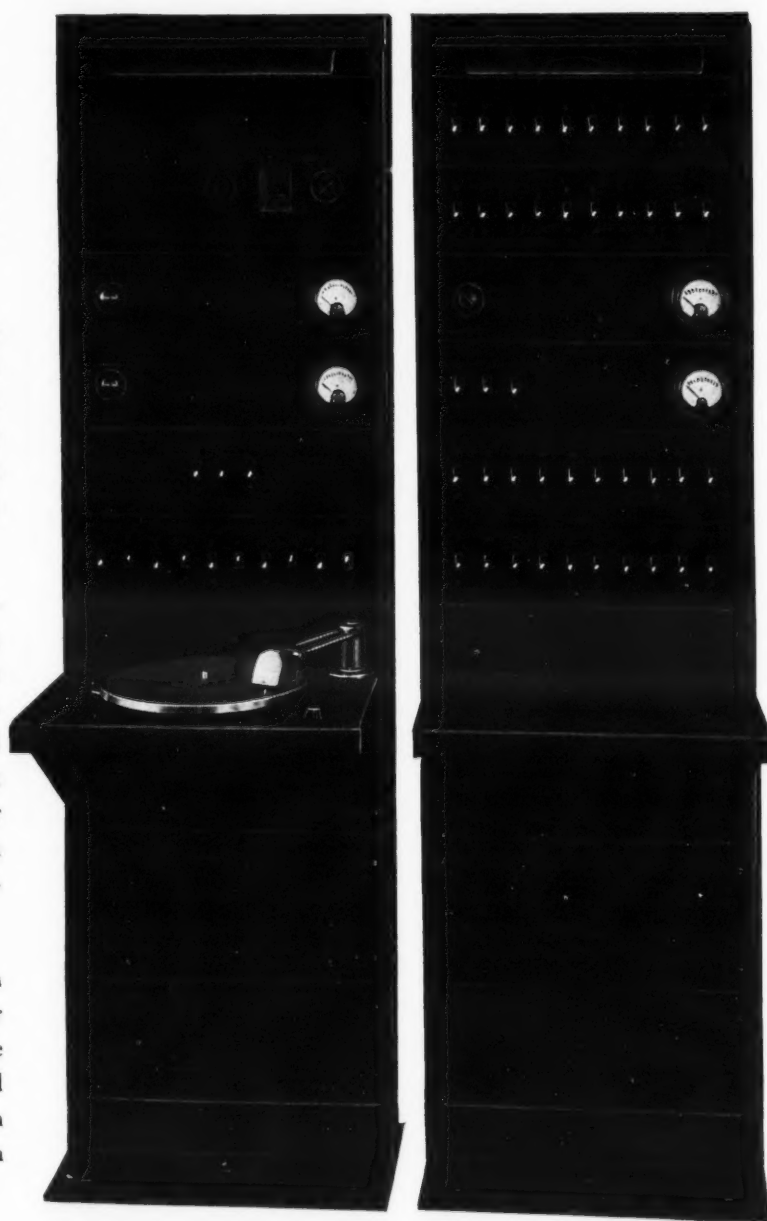
This system is one which has been designed from information as to educational needs supplied us in a national survey by school boards, superintendents, principals and teachers. It is not a system adapted from other systems to partially fill the wants of the school.

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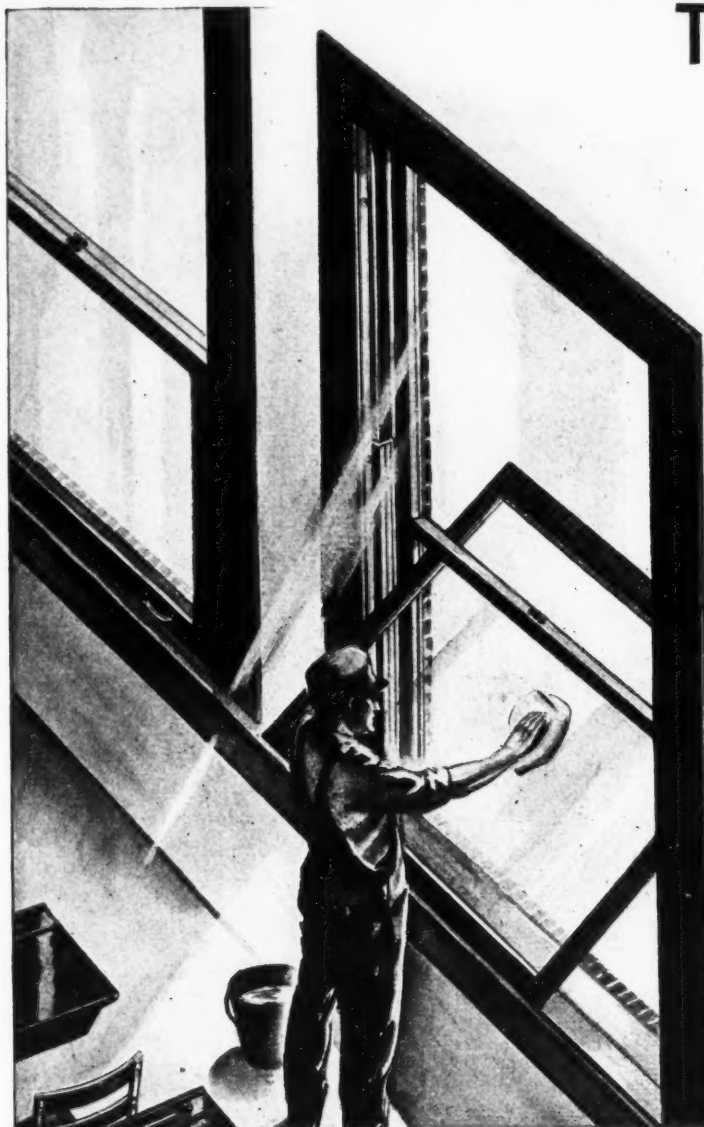
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BUILDING NEWS OF THE SCHOOLS

NEW YORK CITY BUILDS A SCHOOL EVERY TWELVE DAYS

The board of education of New York City, in the past ten years, has built 289 schoolhouses, or an average of 29 a year, or one every twelve days. In the next ten years, the board plans to keep up that pace, or even to increase it.

The board has worked out a definite building program for the next three years, which calls for an expenditure of \$150,000,000. A large part of that sum will be spent for new high schools, vocational schools, and technical schools. It is noted that the high schools accommodate 10,000 more students each year than the year before, which is attributed to the recognition of the value of a high-school education and the opportunities for those who successfully complete its courses.

WM. B. ITTNER HONORED

The University of Missouri, on June 4, conferred the honorary degree of doctor of laws on Architect William B. Ittner, of St. Louis, Mo. Mr. Ittner, who is a Fellow in the American Institute of Architects, has gained national prominence as a designer of school buildings. His school-building service has extended to every state in the Union and includes a number of schools in St. Louis, as well as numerous other cities throughout the country. Mr. Ittner is a graduate of the special course in architecture at Cornell University.

SCHOOL VENTILATION LAWS

In a recent bulletin issued by the United States Office of Education, Dr. James Frederick Rogers, specialist in health education, discusses the subject of legislation on school ventilation as follows:

"The ventilation of schools has been, and still is, the most troublesome problem in school hygiene. In the nineties the carbon dioxide of the air, if not looked upon as a menace in itself, was at any rate set down by the ablest sanitarians as a definite gauge of the degree of toxicity of the air

caused by human 'effluvia.' When it was formulated by science that, in order to keep the carbon dioxide down to a certain concentration, and hence the poisonous animal matter in the air at a safe dilution, each child must have delivered to him 2,000 cu. ft. of fresh air per hour, there was something definite on which to set up legislation. In consequence, ventilation laws or regulations on this subject were formulated by 31 states, and in 20 of these states a standard was set of 30 cu. ft. of air supply for each pupil per minute.

"Although set up by the authority of science, scientists, or at any rate some scientists, after only a quarter of a century seem to regret that these specific requirements were ever put into effect and would demand their revocation. It is worth noting that for a number of weeks of the school year (when the furnaces are not in operation and when the health of the pupil is apparently at its best) the required amount of air is never delivered to the pupils. The doubt that has been thrown by recent studies on the value of the ventilation requirements of these laws (when the laws are fulfilled) should put a damper on legislation which is too specific in its demands."

SURVEY OF ST. PAUL PUBLIC SCHOOLS

A comprehensive survey of the schools of St. Paul, Minn., was made by the Bureau of Municipal Research of that city. In dealing with the finances it is found that of a total annual expenditure of \$3,333,000, fully 85 per cent goes for instructional salaries; 9 per cent for janitors and engineers; 3 per cent to business administration; 1 1/2 per cent for health service.

The survey experts in presenting their conclusions, pointed out that "first among the needs of the schools are adequate funds to maintain the school buildings. It is impractical to do so properly with the funds now available. An increased appropriation is essential in order to restore buildings to a sound condition and to make them fit places of habitation for 38,000 children ten months of the year.

"No intensive and planned maintenance program such as painting, decorating, and repairing has been followed for several years due to lack of

funds. Both old and new buildings need attention.

"Next in importance is the need for larger sums for educational supplies and for an increased number of teachers.

"The question as to how such funds may be provided has not been considered. It has been the function of this group to furnish a fact basis for any discussion that may be had on the financial situation of the schools."

BUILDING NEWS

♦ Sayre, Okla. By a vote of two to one, the voters have approved a bond issue of \$32,000 for school-building purposes.

♦ Schuylkill Haven, Pa. At a recent election, the voters approved a bond issue of \$122,500 for school-building purposes. The program includes the erection of new schools, the remodeling of existing buildings, and the purchase of school sites.

♦ Benton Harbor, Mich. At a recent school election, the voters approved a bond issue of \$200,000 for the remodeling of the junior-high-school building.

♦ McComb, Miss. The school board has adopted a budget of \$111,392 for the school year 1930-31, which is \$500 less than that for the previous year.

♦ Portland, Oreg. A budget of \$5,124,530 has been adopted by the school board for the next year. The present budget is \$142,583 more than that for the last year. The largest single item in the budget is \$3,923,656 for teachers' salaries, which is \$119,000 more than last year's budget item.

♦ The board of education of Dearborn, Mich., has increased the bond of the school treasurer from \$50,000 to \$300,000. This is due to the fact that a bond issue of \$225,000 has been authorized.

♦ Bellevue, Pa. A bond issue of \$35,000 has been approved for the enlarging of the Grant School.

♦ Port Vue, Pa. A bond issue of \$60,000 has been approved for enlarging the Romine Avenue School. Another bond issue of \$25,000 was approved for building an auditorium and gymnasium.

(Continued on Page 88)



Acousti-Celotex in the classroom ceilings of the Beverly Hills High School, Beverly Hills, Calif., subdues noise and provides ideal conditions for lecturing and study. Note the attractive decorative effect.

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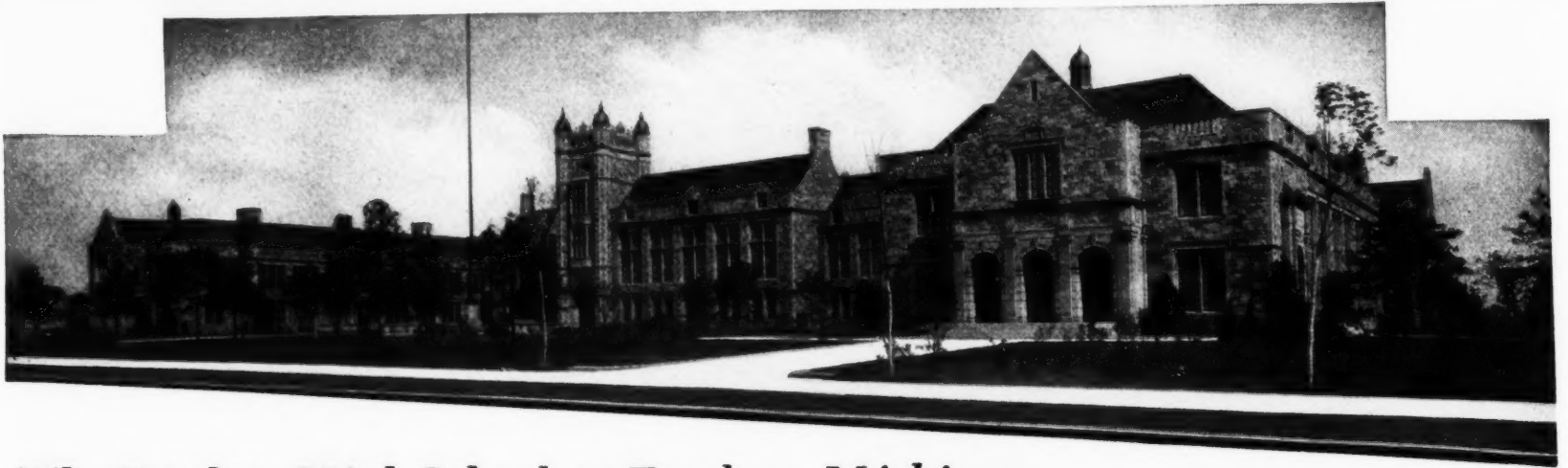
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(Continued from Page 86)

♦ Bonds of the Lorena school district, of McLennan county, Tex., in the amount of \$35,000 have been approved by the state education department. The bonds were serials at 5 per cent interest.

♦ Shillington, Pa. The voters recently approved a bond issue of \$75,000 for a new school. Plans for the building have been prepared by Mr. H. V. Patterson, architect, of Wyomissing, Pa.

♦ The school board of New York City has been asked to approve plans and specifications for the construction of the Brooklyn Technical High School, to be erected at a cost of \$4,152,500. The structure will be the most expensive high school in the city, since the total cost for the site, construction, and equipment will be more than \$6,000,000.

♦ Oshkosh, Wis. Although the school board has approved a list of suggested improvements in schools, the program of repairwork for the summer has been limited because of a lack of funds. The board has about \$8,000 remaining in the repair fund, which will be made to go as far as possible in the carrying out of the most necessary improvements.

♦ Construction work was started recently on the Thomas DeVilbiss High School, at Toledo, Ohio, which will be completed in September, 1931, at a cost of \$1,358,665.

♦ Alliance, Ohio. With the approval of a \$50,000 bond issue, the school board has taken steps toward the erection of a grade school, to cost \$125,000. A fund accumulated from a special 1-mill tax will complete the building fund.

♦ Greenport, N. Y. The voters have approved the purchase of a 14-acre plot of ground for a new school.

♦ The aim of the school-building survey is summarized by Dr. George Strayer of Columbia University in the following language: "A survey of the school-building problem is a scientific study of the problem. It includes an accurate and comprehensive presentation of all the facts and factors in the situation, a careful analysis of these facts, and the formulation of a program which will make it possible to achieve the goal of an adequate and efficient school housing of the community's chil-

dren in a manner which will be most economical and effective."

♦ Bellevue, Pa. The voters, by a 2-to-1 vote, recently approved a bond issue of \$450,000 for the erection of a high-school and for an addition to one of the grade schools.

♦ Desloge, Mo. The school board has adopted a building program, calling for an expenditure of \$115,475 for an auditorium and gymnasium and for alteration to the high school.

♦ At a recent election, the voters of Bernalillo, N. Mex., approved two bond issues of \$40,000 and \$50,000 for a union high school.

♦ Albert Lea, Minn. By a 3-to-1 vote, the school board has been given authority to issue bonds in the amount of \$85,000, to be applied toward a building fund for the completion of the high-school plant and for the erection of a gymnasium, and the installation of a heating plant.

♦ Mt. Lebanon, Pa. A bond issue of \$440,000 has been approved for an addition to the high school in Cochran Road.

♦ Jersey City, N. J. The school board is completing two school buildings. The first is a 22-room addition to a school, which is to be completed in September. The other is a three-story building, containing 62 classrooms, which is to be completed and occupied some time during the next school year.

♦ The citizens of Joplin, Mo., have voted \$650,000 in bonds for the completion of a school-building program begun in 1926. With the completion of this program, practically all the buildings comprising the school plant will have been remodeled and modernized. During the past few years, the city has voted four separate bond issues. More than \$2,000,000 has been expended for the improvement of the school plant, which included a senior high school, three junior high schools, and thirteen elementary schools.

♦ Mr. W. Z. Carr, president of the school board of Richmond, Ind., has asked that the board proceed with the proposed building program, to cover

(Concluded on Page 91)



THE MILLPORT HIGH SCHOOL, MILLPORT, ALABAMA
Charles W. Hall, Architect, Birmingham, Alabama

This building affords complete school accommodations for a rural community. It contains 12 classrooms and an auditorium, and was erected at a cost of \$35,000. It is typical of the schoolhouse plants developed in Alabama under the state program of school improvement.

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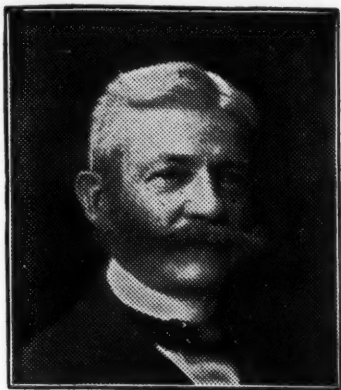
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(Concluded from Page 88)

a 15-year period, and to involve a system of financing for the various projects. For the purpose of formulating a future building program, the school board, about a year ago, ordered that a survey be made, and obtained the services of Dr. George D. Strayer and Dr. N. L. Engelhardt to undertake the work. A report of the survey has recently been published and its findings discussed at various school and civic meetings.

♦ Philadelphia, Pa. The board of education has received bids for the construction of the new school administration building. The building, a 12-story structure, will be erected on the Parkway.

♦ A bond issue for a high school was recently voted at Linden, Tex.

♦ Mexia, Tex. The voters of Ben Hur school district have approved a bond issue of \$35,000 for the erection of a school.

♦ Laredo, Tex. The city has adopted an extensive civic building program, including the construction of a high school, at a cost of \$300,000.

♦ Elgin, Ill. The building and grounds committee of the school board has made a study of the building needs for the new school year. A program of repairs and improvements to schools will be carried out during the summer vacation.

♦ The board of education of New York City will expend \$150,000,000 for school construction and playgrounds during the next three years, with annual expenditures of from \$40,000,000 to \$50,000,000 for the years thereafter. The estimates were based on preliminary studies of the population increases and shifts as indicated by the federal census figures and other factors entering into the planning of new schools.

For school-building purposes a shift in population is the same as a net increase, according to officials of the city schools, and the board of education has conducted its building surveys for the next three years with an eye chiefly to the population shifts which are likely to result from the extension of rapid-transit facilities.

♦ The east side school board of Aurora, Ill., has adopted a repair and replacement program, involving an expenditure of more than \$10,000. The

largest item, \$5,225, will be expended at the high school for improvements to the building. The school board has adopted a rule governing leaves of absence for janitors. Six days a year will be allowed each janitor for absence because of illness or death in the immediate family.

♦ Avoca, Iowa. The voters have approved a bond issue of \$20,000 for an addition to the school building.

♦ Wilmington, Calif. The school board has adopted a school-building program, calling for an \$85,000 addition to the main building, a \$50,000 gymnasium, and six bungalow classrooms costing \$15,000.

♦ Oak Park, Ill. The school board conducted a school for custodians in one of the school buildings during the week of June 16 to 21. The entire staff of 25 janitors was in attendance. The course centered around the scientific methods of school-building care and included demonstrations of the various types of equipment and materials, a presentation of the methods and devices for building care, a study of training methods used in providing a knowledge of the applications of science in the ventilation and sanitation of school buildings, and discussion groups for the exchange of ideas among the men. The work was presented in the form of lectures and demonstrations and was under the direction of Mr. M. S. Olsen, of Minneapolis, assisted by Mr. R. L. Holmes, superintendent of buildings and grounds.

♦ Alexander, Kans. The voters have approved a bond issue of \$30,000 for an addition to the school building.

♦ Evanston, Ill. The school board of District No. 76 has estimated that it will require \$500,000 for the school operating expenses for 1930-31. This is an increase of \$40,000 over the past year, which is attributed to the interest charges the district must stand this year due to the delay in tax

payments. The levy is divided between \$375,000 for educational purposes and \$125,000 for building purposes.

♦ Russellville, Ark. A junior high school will be erected, at a cost of \$60,000. The school will be organized on the 6-3-3 plan and will contain 16 classrooms and a study hall.

♦ St. Charles, Mo. The taxpayers have voted a bond issue of \$70,000 for the erection of an elementary school and for a playground site.

♦ Rockville Center, N. Y. The citizens have approved a school-bond issue of \$225,000 for the erection of an elementary school. Plans have been prepared for an 8-room building with auditorium and library, to be erected on a 5-acre plot owned by the school district.

♦ Norfolk, Nebr. The school board has voted to call an election to vote \$190,000 in bonds for an addition to the present senior high school and new units for two ward schools.

Since 1922, the school board has retired \$182,000 in bonds from general school moneys, in addition to the required sinking-fund levies. It is not expected that the new bond issue will create as great an indebtedness as in former years.

♦ Maryville, Mo. The school board has let the contracts for the erection of an elementary school adjoining the high school. The building will contain 14 classrooms, in addition to a library and an auditorium-gymnasium, and will be completed at a total cost of \$140,000. The architects of the building are Messrs. Felt, Dunham and Kriehn, of Kansas City, Mo.

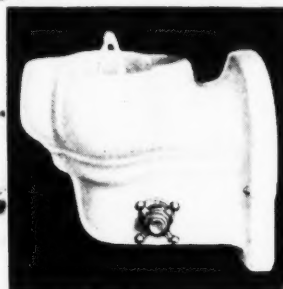
♦ The school board of South St. Paul, Minn., is completing a high-school auditorium, which will be ready for use on September 1. The building is the last project in a \$500,000 building program started two years ago. It will contain a cafeteria seating 350 persons, and an auditorium with accommodations for 1,200, and will be completed at a cost of \$140,000.

♦ LaGrande, Ore. The school board has adopted a policy favoring unmarried women for teaching positions in the schools. It was pointed out, that this has been the policy of the board for the past seven years, but the resolution makes the board's policy public.

Children have an inalienable right to constructive joy—and that is a product of the playground.—Herbert Hoover.



Hathaway Brown School, Cleveland, Ohio
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SCHOOL FINANCE AND TAXATION

SEVEN WAYS ON SCHOOL BUDGET

The board of education of Minneapolis, Minnesota, has been confronted with the problem of carrying out its pledge to increase the salaries of 2,500 public-school teachers. Carroll R. Reed, the superintendent of schools, has contended that the morale of the teachers will be disturbed if the promised increases of \$100 a year are not made. He has presented the following seven suggestions for a budget adjustment:

1. The board of education may accept the amount of money allowed by the board of estimate and taxation, as a matter of policy, with the conviction that it is well to have such a body to limit the expense of the various city departments and that the board of education should submit to its decisions.
2. The board may fight for its independence of the board of estimate and taxation, on the basis that schools are primarily a state function and stand in a different relationship to the people than the other departments of the city government. This belief is upheld by the procedure in most of the smaller communities in the state of Minnesota.
3. Regardless of the action of the board on the first two propositions, something must be done to meet the present financial situation. The board may accept the suggestion of the board of estimate and taxation and refuse increases to the 900 teachers who are at the maximum.
4. The board of education may give all increases in accordance with the salary schedule, and then make a percentage cut in the total salary of every employee, from the superintendent down, cuts not to be made to any persons whose annual salary would be less than \$1,500.
5. The board of education may allow all salary increases, in accordance with the schedule, and increase the teaching load, as a matter of financial expediency, and follow this up by a series of studies to determine just what effect this has upon the efficiency of the schools.
6. Increases may be allowed and a study of the above budget analysis may be made, with the idea of eliminating or curtailing certain special activities which do not affect a large percentage of children and which are in the nature of unusual and increased service.
7. A combination of several of these suggestions may

be made, which will result in accomplishing the desired saving, with the least sacrifice in the quality and quantity of service rendered.

FACING A SCHOOL-FINANCE PROBLEM

The board of education of Beardstown, Ill., finds itself in a financial dilemma and has presented its case to the public. The revenues for school purposes have declined at the rate of \$10,000 each year since 1925. The property values have fallen until they are now \$542,876 less than they were five years ago. The tax rate of \$1.88 for school purposes has remained the same.

The board states that unless relief is afforded there must be an elimination of all music instruction, athletics, home economics, agricultural and manual-training studies, school nurse, etc. The effect would be to break down the high standing which the schools now enjoy.

The recommendation is that an added tax of $1\frac{3}{4}$ per cent more be authorized. This must have the approval of the voters. The statement is signed by Pres. Walter Bley, F. C. Huss, W. T. Beatty, E. V. Von Fossen, A. G. Schultz, A. D. Millard, and Secretary C. E. Soule.

SCHOOL TAXES IN KANSAS

An interesting study on the school taxes of Kansas has been prepared by Prof. Carl B. Althaus and issued by the University of Kansas. The study aims to answer the following questions:

1. What is the trend of taxes levied for state and local purposes?
2. How does the increase in taxes levied for schools compare with the increase in taxes levied for state, county, township, and city purposes?
3. For what classes of schools have the increases in the amount of taxes levied been most rapid?
4. What are the causes for the increase in school taxes?
5. How does the increase in taxes levied for school purposes compare with the increase in ability to support schools?
6. How does Kansas compare with the other states in regard to percentage of estimated income devoted to schools?
7. How does Kansas rank educationally when compared to the other states of the United States?

8. How should the increasing sums of money, which will be needed to provide adequate schools, be obtained?

The expert brings out the several causes which have made for increased school costs, and which apply everywhere to the schools throughout the country. The tax ability of the state is also well analyzed and discussed.

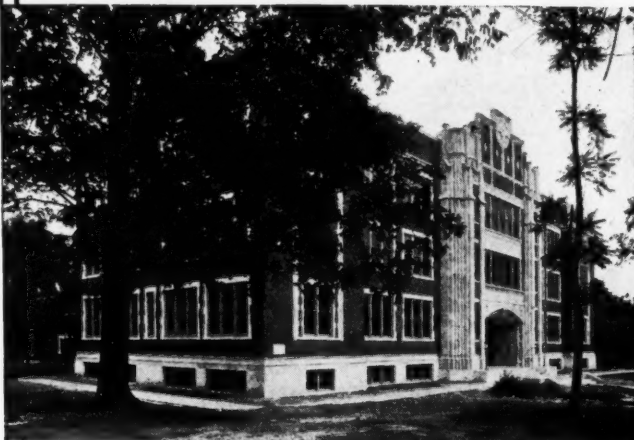
In his summary and conclusions Prof. Althaus points out that while the general tax levy has risen considerably, school taxes have exceeded all others by far. He shows that while the taxes for special high-school purposes were \$1,104,000 in 1916 they were \$7,306,000 in 1928.

The real point in the Althaus study must be found in its analysis of the tax situation. Here the author says:

"In order to provide adequate school support and to finance other governmental activities, the system of taxation in Kansas will need to be revised. At the present time over four-fifths of the revenue collected for state and local purposes is raised by means of property taxes. A large portion of the property tax is on real estate, and the owners of agricultural property are carrying a much heavier burden of taxation, according to their income, than the owners of nonagricultural property. The people of Kansas adopted the property tax when the economic conditions of the state were very simple. Wealth consisted chiefly of tangible property and was probably an adequate means of reaching all persons who had any tax-paying ability.

"In recent years different forms of wealth have appeared and economic classes have arisen who support themselves by their incomes of earnings. Many of these persons have little or no taxable property, yet their incomes represent tax-paying ability. Failure of the property tax to reach these persons is one of its marked limitations. Methods of taxation which will distribute the burden of taxation more in accordance with the taxpayers income or ability to pay should be established. With such a system of taxation in operation, the people of Kansas will be able to provide sufficient funds to maintain adequate schools and to carry on all the other necessary activities of government, without retarding their social and economic progress."

(Concluded on Page 94)



Gymnasium
in the
Father Ryan
High School,
Nashville,
Tennessee



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THEY are factory-sanded, and then chemically treated, effecting a very material saving in sanding and finishing costs. This improved product meets every requirement a school floor should possess; it is durable, supporting constant heavy use, with ease and noiselessness under foot; inexpensive in both original and upkeep costs. The unit block is rapidly laid, and the floor is economically maintained.

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Industrial Cleaning Materials and Methods

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(Concluded from Page 92)

FINANCE AND TAXATION

♦ Akron, Ohio. The school board is faced with a serious financial situation and a need for radical retrenchment, which is attributed to a large item of delinquent taxes. Supt. T. W. Gosling has pointed out that present operating funds are inadequate to meet existing obligations so that additional levies will be necessary. The operation of the board's building program must be insured through bond issues.

♦ Wichita, Kans. The school board has sold to a Wichita and a Chicago bonding house \$450,000 worth of school bonds, at $4\frac{1}{2}$ per cent interest. The bonds were disposed of for \$447,138.

♦ Orville C. Pratt, superintendent of schools at Spokane, Wash., in a recent public address, discussed the subject of taxation in its relation to school support. "Property seems to have changed from the tangible," he said, "to the intangible, and can therefore evade taxation. Personal property now practically escapes tax entirely. Constant deductions have been chronic ailments of tax resources for school use. The problem of school expenses has passed out of the hands of the school board into the hands of the people. We have too long held a bland and childlike faith in the situation as it is; the time has come for concerted action and for arriving at a remedial solution."

♦ Boston, Mass. The school board has adopted a budget for the school year 1930, amounting to \$15,889,879. In addition, there is an appropriation of \$1,773,328 for alterations, repairs, furniture and fixtures for school buildings, and a further appropriation of \$5,000,000 for lands, plans, and buildings to be spent this year.

♦ Pawhuska, Okla. The voters have approved an additional 10-mill tax levy for school purposes.

♦ Cartersville, Ga. The school board has sold \$100,000 in school bonds to an Atlanta banking concern, at a premium of \$6,565.

♦ Tecumseh, Nebr. The school board has sold \$100,000 in school bonds to an Omaha banking concern, with interest at $4\frac{3}{4}$ per cent.

♦ Flint, Mich. The school board has adopted a school tax totaling \$3,619,903, which represents

an increase of nearly \$300,000 over the year 1929. The increase represents an item included in the budget for the financing of a new school to be built on the pay-as-you-go plan.

♦ The school board of Flint, Mich., has sold to the lowest bidder \$325,000 in tax-anticipation warrants. The successful bid was on the basis of \$100,000 at $4\frac{1}{4}$ per cent, and \$225,000 at $4\frac{1}{2}$ per cent, plus a premium of \$2.

♦ Homewood, Ill. The financial situation of the local school system will be materially affected by the new high property valuations and the high-school rate levied by the board of education. Under the present valuation of \$3,065,210 made under the 1928 reassessment, and with a rate of \$1.72, a total income of \$53,421 will be received in the local school fund. It is expected that at least \$34,000 of the indebtedness will be removed this year through the receipt of the 1928 tax money.

According to Mr. C. A. Menzel, head of the committee on finance, the board owes \$2,975 in interest on bonds, \$10,600 in interest on tax warrants, 2 per cent collection charge, and \$5,342 in delinquent payments, making a deficiency of \$18,917, which must be taken care of through the 1928 tax moneys. This leaves \$34,504 to be used in taking care of old tax-anticipation warrants, making an outstanding school indebtedness of \$132,000.

♦ Cambridge, Mass. The superintendent of schools and the members of the school board have asked permission to introduce a bill in the legislature for giving the board the right to use \$121,000 which the city auditor and solicitor have ruled does not belong in the school appropriation. It was pointed out that the schools need the addi-

tional money and that this was the only way of obtaining the necessary financial relief.

♦ Akron, Ohio. The 1931 school budget will be increased by an item of \$300,000 for the teachers' payroll, which has been attributed to increases in the number of teachers and to the usual annual increments.

♦ New Kensington, Pa. The school board has established a tax rate of 21 mills and retained the \$2 per capita tax for the next year.

♦ Shenandoah, Pa. The finance committee has asked that the board approve a millage of 25 mills and a per capita tax of \$5 for the next year.

♦ St. Joseph, Mo. Two large elementary schools will be completed ready for use on September 1. In addition, contracts have been let for the construction of two additional elementary schools and a large senior high school.

♦ The attorney general of Wisconsin has recently ruled that a vocational school board has a duty to carry insurance coverage on vocational-school buildings. While the title of the land and the buildings is held by the city, the school board must see that insurance is carried, because insurance is a part of the cost of operation of vocational schools. The opinion was given at the request of the board of vocational education of Oshkosh.

♦ Stevens Point, Wis. The local board of education is going into the secondhand book business. At the close of the year, the board purchased all the privately owned books of pupils in the schools and will resell them to other pupils in the fall. The plan was adopted in preference to one of providing free textbooks. The change is expected to mean a saving of thousands of dollars to parents.

BOND INTEREST RATES DROPPING

(Concluded from Page 70)

Table VI shows the tremendous decline that has occurred in commodity prices during the past year. This decline amounts to almost 8 per cent during the past twelve months. The price of building materials continues to decline with every prospect that the movement is not over. This, of course, should lead one to expect lower prices on school buildings.

The test of true education is not what schooling does for the student, but what the student does for himself. Teachers provide his mental tools, but only he can decide how well he may use them.—Everett Dean Martin.



"The Floor Finish with Tremendous Advantages"

A Universal Expression of All Who Are Using It

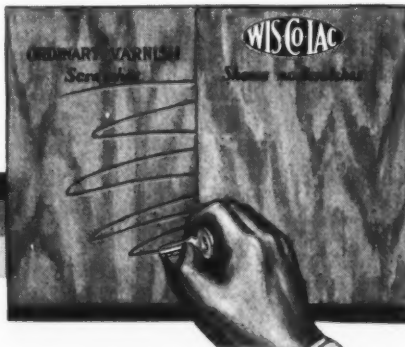
That statement is totally without exaggeration, and reasonably conservative: "tremendous advantages" over so-called best and highly popularized varnishes and other floor finishes. WIS-CO-LAC superiority has been truth proved in its fourteen years of usage; while its advantages and more beneficial results are obvious immediately when applied. Consider WIS-CO-LAC now for refinishing your present floors (and furniture): and on the new floors of your building.

A CRYSTAL clear finish that is tough as steel when dry. Impervious to hot water, grease, acids, etc.; cannot be scratched by shoe nails, grit, etc.; cannot be dented, positively does not crack, chip, check, peel or blister; and will not fade or change color. Becomes a solid part of the surface to which it is applied: and wears more than twice as long as any other floor finish made, retaining its glass-like brilliance, clarity and newness indefinitely. A floor protection and preservative, combined with a gloss — permanent, clean, colorful floor finish that endures against all wear and destruction which commonly destroys other finishes. Highest efficiency in every respect, and by far the most economical finish on the market.

No Wax or Oil
Does not absorb dust like wax and oil preparations: a clear, clean, non-porous coating.

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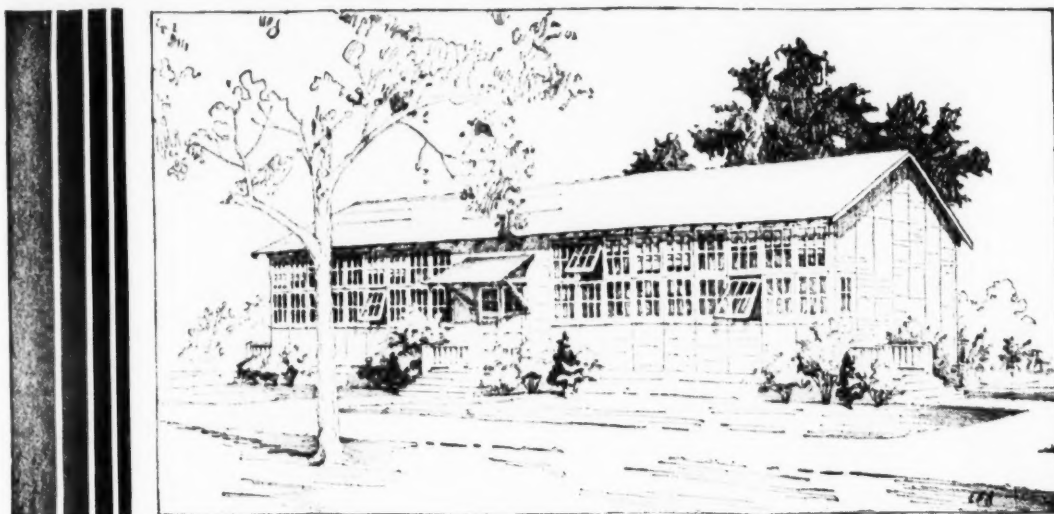
HAS lively liquid body: flows lightly, quickly, and is applied in a hurry. Dries hard in a short time: can be walked on in half hour. Only lacquer compound that can be applied more than one coat with a brush: will not pick up previous coat. Succeeding coats applied 10 to 15 minutes apart. No waiting, no delay; big time and labor saver. No brush marks or lapping, no streaks or lines as experienced with varnish: entire floor a uniform sea of glass-clear beauty. More readily cleaned than other floor finishes: more sanitary and less costly to care for. Can be applied by any one able to wield a brush. Has withstood every test possible to give, and endorsed by school officials everywhere as the final answer to all floor and furniture finishing requirements.

Sanitary . . . Clean
Particularly desirable for kindergarten floors: because of strictly sanitary cleanliness.

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A sample quantity of WIS-CO-LAC will be furnished on request: for you to give it every test you desire—to truth prove for yourself the statements made here: and the "tremendous advantages" you too will obtain with the use of WIS-CO-LAC on your floors and furniture. Write for sample now.

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Typical Two-Room School

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The Jersey City Teachers' Salary Schedule

The school board of Jersey City, N. J., has adopted a salary schedule, prepared by Supt. James A. Nugent, providing for definite minimum salaries, with increments up to the maximum salary after ten and five years of service.

Under the schedule, teachers in the elementary schools will begin at a minimum of \$1,400, and will receive annual increments of \$100 for ten years and \$200 for five years, up to a maximum of \$3,400.

Vice-principals in the elementary schools will receive as a minimum \$100 above the salary of the grade teachers, with annual increments of \$250, up to a maximum of \$4,000.

Principals of primary departments and primary schools will begin with a minimum of \$3,500, with annual increments of \$350, up to a maximum of \$5,500. Principals of grammar schools will receive a minimum of \$3,500, and increments of \$350, up to a maximum of \$6,500.

Shop Teachers' Salaries

Teachers of industrial arts and shopwork will begin at a minimum of \$2,000 and will receive annual increments of \$100 for five years and \$200 for three years, up to a maximum of \$3,600. Teachers of domestic science will begin at a minimum of \$1,600, with increments of \$100 for ten years and \$200 for five years, up to a maximum of \$3,600.

Teachers of shopwork in the vocational schools will begin with \$200 extra compensation, and will receive annual increments of \$100 for ten years, and \$200 for following years, up to a maximum of \$3,800. Teachers of household arts will receive \$200 extra compensation, and annual increments of \$100 for ten years and \$200 for the following years, up to a maximum of \$3,800. Academic teachers will receive extra compensation and annual increments of \$100 for ten years and \$200 for the following years, up to a maximum of \$3,700. Prevocational teachers will receive extra compen-

sation and annual increments of \$100 for ten years and \$200 for the following years, up to a maximum of \$3,520. Principals of vocational schools will receive a minimum of \$3,500, and annual increments of \$350, up to a maximum of \$6,500.

Assistant teachers in junior high schools will receive \$400 extra compensation, and annual increments of \$100 for ten years and \$200 for the following years, up to a maximum of \$3,800. Vice-principals will receive a minimum of \$2,800, with annual increments of \$300, up to a maximum of \$5,000. Teachers of industrial arts will receive an extra compensation of \$400, and annual increments of \$100 for ten years and \$200 for the following years, up to a maximum of \$4,000. Principals will receive a minimum of \$5,000, and annual increments of \$350, up to a maximum of \$7,000.

High-School Salaries

Assistant teachers in senior high schools will begin at a minimum of \$2,200, and will receive annual increments of \$225, up to a maximum of \$4,500. Vice-principals will begin at a minimum of \$3,500, and will receive annual increments of \$350, up to a maximum of \$6,500. Principals in senior high schools will begin at \$5,000, and will receive annual increments of \$500, up to a maximum of \$8,000.

Special teachers of ungraded classes in group one will receive \$600 extra compensation, and annual increments of \$100 for ten years and \$200 for the following years, up to a maximum of \$4,000. Teachers in group two will receive extra compensation of \$200 and \$300, with annual increments of \$100 for ten years and \$200 for the following years, up to a maximum of \$3,700. Teachers in groups three and four will receive extra compensation of \$100 and \$300, with annual increments of \$100 for ten years and \$200 for the following years, up to a maximum of \$3,700. Teachers in groups five and six will receive \$100 extra compensation, and annual increments of \$100

for ten years and \$200 for the following years, up to a maximum of \$3,500.

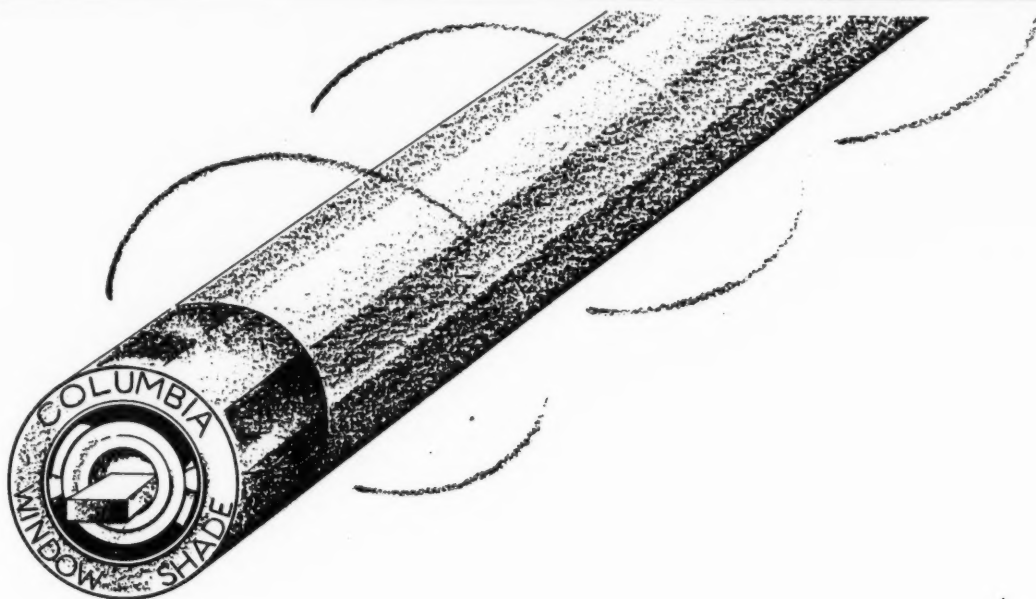
Supervisors in primary, grammar, and intermediate schools, directors of manual training and domestic science, supervisors of drawing and physical training, directors of music, and supervisors of classes for mental defects and speech defects will receive a minimum of \$4,000, with annual increments of \$350, up to a maximum of \$6,500. Assistant supervisors of physical training and assistant directors of music will receive a minimum of \$3,000, with annual increments of \$300, up to a maximum of \$5,000. Directors of industrial and special trade education classes will receive extra compensation of \$800, with annual increments of \$350, up to a maximum of \$6,500.


Teachers in hospital classes will receive extra compensation of \$200, and annual increments of \$100 for ten years and \$200 for the following years, up to a maximum of \$3,600. Physical-training teachers in elementary schools will receive extra compensation of \$60, with annual increments of \$100 for ten years and \$200 for the following years, up to a maximum of \$3,460. Home visiting teachers and assistant teachers in high schools will receive extra compensation of \$100, and annual increments of \$100 for ten years and \$200 for the following years, up to a maximum of \$3,500. Teachers of speech-correction classes will receive extra compensation of \$300, and annual increments of \$100 for ten years and \$200 for the following years, up to a maximum of \$3,700. Vocational counsellors will receive a minimum of \$4,000, with annual increments of \$350, up to a maximum of \$6,500.

Assistant teachers in continuation schools will receive extra compensation of \$120, with annual increments of \$100 for ten years and \$200 for the following years, up to a maximum of \$3,520. Academic, shop, and home economics teachers in these schools will receive extra compensation of \$200, with annual increments of \$100 for ten years and \$200 for the following years, up to a maximum of \$3,800.

Beginning with September 1 of each year, every



(Concluded on Page 98)




Made with the precision of a fine timepiece  Smooth in

action as a champion's drive  Steady with the balance

born of power in reserve  Quick to respond as a hair-

trigger shootin'-iron  Quiet as a goldfish in a globe 

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WHEN school re-opens in September the windows will be spotlessly clean, the walls will have been re-painted, new equipment will have replaced the old — but what about the desks and floors . . . will they, too, look like new?

Schools of every description can easily do this refinishing work themselves at a saving of 50% over usual costs by having their own

AMERICAN SANDERS

You will be surprised at the ease with which the American Sanderplane refinishes marred desks, and the American Universal resurfaces old floors. It is not necessary that the services of a trained operator be obtained . . . any janitor or any student can easily handle these American sanders.

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After refinishing with these sanders during vacation months you can also make good use of them the balance of the year . . . the American Universal for polishing floors, while the American Sanderplane is used to advantage in manual training departments as a bench sander.

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Refinishing School Desks with the American Sanderplane

The American Floor Surfacing Machine Company

506 South St. Clair Street, Toledo, Ohio

World's Leading Manufacturers of Quality Sanders for More Than 25 Years

(Concluded from Page 96)

teacher who completes thirty years of service will be entitled to a double increment, this increment to continue until the maximum is reached.

All teachers appointed to the high schools from elementary schools will receive \$500 above their salaries as grade teachers.

Malden, Mass. The school board has granted increases of \$100 in salary for teachers receiving the maximum, with the beginning of the school year in September. The increases affect 180 teachers and involve an added expenditure of \$18,000.

TEACHERS' SALARIES

THE ST. CLOUD SALARY SCHEDULE

The school board of St. Cloud, Minn., has adopted a new salary schedule, prepared by Supt. R. H. Brown. The schedule recognizes training and experience and provides definite academic and special qualifications for elementary, junior-high-school, and senior-high-school teachers.

Under the rules, elementary-school teachers in grades one to six must have two years of professional training in a recognized training institution beyond the regular four-year high-school-course, with two years of experience in the grade of work for which the applicant applies. Grade teachers with experience beyond the minimum requirements for such positions will be given \$25 per year additional for each year of experience beyond the minimum up to eight years, at which time the maximum salary will be \$1,350.

Elementary teachers will begin with a minimum of \$1,150, and will advance at the rate of \$100 a year, up to a maximum of \$1,550 in the seventh year.

In the junior high schools, the state requirements for professional training are considered as the minimum qualifications. Teachers in these schools must fulfill the professional-training requirements demanded by the Northcentral Asso-

ciation of Colleges and Secondary Schools, and must possess special training and ability to lead and direct the activities in the field of extra-curricular activities. The experience requirements are two years of experience in the subject for which the applicant has applied and in which he or she had majored in his or her college course. The board reserves the right to recognize superior educational qualifications and exceptional teaching ability in candidates whose experience has been in a system of schools other than that designated in the schedule.

Junior-high-school teachers without degrees will begin at a minimum of \$1,250, and will advance at the rate of \$100, up to a maximum of \$1,650 in the seventh year. Teachers holding the bachelor's degree will begin at a minimum of \$1,400, and will advance at the rate of \$100, up to a maximum of \$2,000 in the seventh year.

In the senior high schools, the state requirements for academic training are the minimum qualifications for teachers in these schools. Two years of experience in the subject to be taught are required. The board reserves the right to recognize superior educational qualifications and exceptional teaching ability in candidates whose experience has been in a system of schools other than those designated in the schedule. Junior- and senior-high-school teachers with degrees, will be given an additional \$50 for each year of experience beyond the minimum, up to five years, at which the maximum initial salary will be \$1,650 for a bachelor's degree, and \$1,750 for the M. A. degree.

Senior-high-school teachers without degrees will begin at a minimum of \$1,400, and will advance at the rate of \$100, up to a maximum of \$2,000 in the seventh year. Teachers with the M. A. degree will be paid a minimum of \$1,500, and will advance at the rate of \$100, up to a maximum of \$2,100 in the seventh year. The maximum salary for married men in the junior and senior high schools will be \$2,200.

Heads of departments, with two teachers, will be paid \$50 additional salary, those with four teachers \$100, those with six teachers \$150, and those with eight or more teachers \$200.

Teachers of special subjects, whose qualifications

are equal to those of academic-subject teachers, will be paid the same salary as the regular academic teachers.

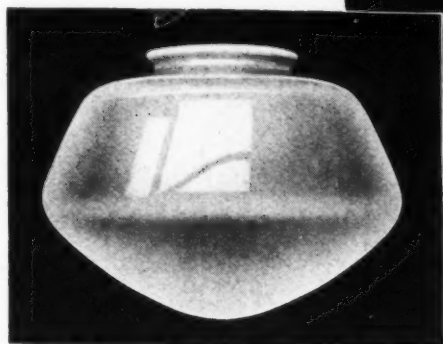
The board recognizes services of special merit, as well as long tenure of service, in making salary increases beyond the schedule. Teaching principals, with three teachers, will be allowed \$100 additional salary, those with five teachers, \$125, those eight teachers \$150, those with twelve teachers \$200, and those with fifteen or more teachers, \$250.

All teachers are allowed five days leave of absence for illness, but this leave is not accumulative. Any absence beyond the five-day period means that the salary of the substitute will be deducted from the salary of the teacher. A maximum bonus of \$100 will be given for each of not more than four summer schools of work of a grade and nature approved by the superintendent. For attendance at an institution of higher learning of recognized standing below the state university, a teacher will be allowed \$50. In order to continue to receive the regular annual increments provided in the schedule, all teachers must attend a summer school for six weeks at least once every three years. Such teachers must present evidence of credits earned before such recognition will be given.

♦ New Boston, Ohio. The school board has given increases of \$50 to \$100 to teachers based on the experience of the individual instructor.

♦ Westport, Mass. Under a new schedule adopted by the school board, teachers with four years of normal or college training will be given a minimum of \$1,200; those with three years of normal training will be given \$1,050; and those with two years of normal training will be given \$900. The annual increases will be at the rate of \$60 a year. Teachers who complete summer courses will receive an additional increase of \$40 a year.

♦ The school board of New Haven, Conn., has awarded contracts to two fuel concerns, both of whom bid \$6.97 a ton. It was revealed that the price for coal for the schools will be from \$1.12 to \$1.67 a ton higher than last year.



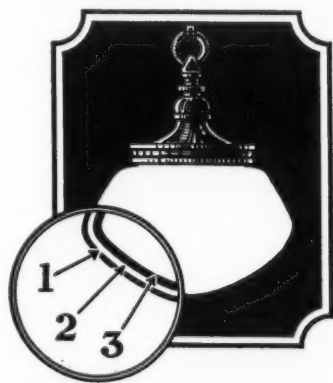
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The combination of the three functions of this three-layer lighting glass (see diagram below) is exclusive with Celestialite and can be found in no other lighting glassware.

Write us for free catalogues showing various designs suitable for classrooms, lecture halls and laboratories.



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Please send me free copy of your booklet, "Out of the Darkness", and fragment of Celestialite glass, showing three-layer construction.

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More than 3500 square feet of J-M Sound Control Material was used on the ceiling of this cafeteria of the John Hay High School in Cleveland, Ohio. As can be seen, the treatment did not interfere with the architectural plan. This is true of all Johns-Manville Sound Control Materials.

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*Johns-Manville Sound Control System stimulates
clear thinking and reduces fatigue*

AS a school official you are called upon constantly to give serious consideration to the health and well being of the pupils in your schools.

You know from the experience gained by big business organizations the advantages of eliminating unnecessary noise. In all departments of a school, reasonable quiet is just as essential to the health and efficiency of the pupils as it is to office workers. In quiet surroundings, clear thinking is stimulated, and the fatigue resulting from excessive noise is eliminated. It is just as essential for school pupils, as it is for office employees, to utilize the noon lunch hour for restful relaxation, and to build up a store of nervous and physical energy to carry them through the day.

The noise and clatter of dishes can be subdued in school restaurants to an astonishing degree by means of Johns-Manville Sound Control Materials. J-M Sound Control Methods are the result of years of scientific study and the practical application of the principles involved.

Johns-Manville, pioneer in the practical application of acoustical science, offers school officials advice of trained acoustical engineers, without obligation on your part. These men will make a careful study of noise conditions and will recommend the means of correcting them.

All sound control work by Johns-Manville is done with specially developed acoustical materials which are ordinarily applied to the ceiling. These materials are fireproof and do not interfere with architectural plans. Whether it be an auditorium, a small room, a corridor, a cafeteria or any other interior, Johns-Manville Sound Control Materials will reduce noise to an undisturbing level.

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Valuable school property is safest under a Johns-Manville Built-up Roof, bonded for a definite term of years. Consult your local Johns-Manville authorized roofer for estimates and a free inspection of your roofs.

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A continuous circulation of fresh, odorless, heated air to all parts of the school bus promotes pupil comfort and health. The N-L Heater includes a high speed blower fan, controlled by the driver, that insures efficient heat distribution regardless of bus speed. Easy to install, reliable in operation, and reasonably priced.

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N-L offers a complete line of exhaust ventilators, the newest being the No. 50 Ventilator, using a highly efficient blower type fan. This ventilator is particularly valuable when the bus is heavily loaded and traveling at slow speeds, where the ordinary roof ventilator is not sufficient. Regulated by the driver without leaving his seat, it rapidly removes stale, bad air regardless of weather and load conditions.

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Instantly as the foot brake is applied, the N-L Flasher Stop Signal catches the attention of the most careless motorist. A vivid, brilliant attention-demanding signal, flashing its warning long distances in both directions. An entirely new application for the most successful type of warning signal.

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TEACHERAGES IN TEXAS

From recent reports it appears that Texas leads all other states in the number and value of teachers' homes maintained.

An audit of the reports of city and county superintendents to the state department of education shows that Texas now has 1,330 teachers' homes of which 1,293 are for white teachers and 37 for the colored. The value of these teachers' homes totals \$1,784,007, the value of homes for white teachers being \$1,723,057 and for the colored \$60,950. In 1925-26 there were 1,028 teachers' homes valued at \$1,347,943.

The average value of homes for white teachers in the common-school districts is \$1,160; for the colored, \$1,536. The Rosenwald Foundation gives financial aid for building teachers' homes for the colored and they must be erected to meet the requirements made by it. The average cost of a teachers' home for white teachers in the independent school districts is \$2,200; for the colored, \$1,909.

MARRIED WOMEN AND COMPULSORY EDUCATION

In California, the question has arisen whether or not marriage relieves girls, otherwise subject to the compulsory-education laws, from compliance therewith. The attorney general has been asked these two questions:

"1. Is the husband subject to the penalties of the school law for failure to compel his wife, a girl between the age of 16 and 18 years, to attend school?"

"2. How can you compel a married female minor between the age of 16 and 18 years to obey the

school law in regard to her attendance upon school, and if she refuses to attend, what can then be done about it?"

The attorney in response to these questions, holds that while all minors, between the ages of 16 and 18 years of age, must attend school, only the parent or guardian can be penalized for failure to compel attendance.

The attorney general further points out that, a girl who marries is thereby released from the control or charge of her parents or guardian but her husband does not have "control or charge" of her so as to render him subject to the penalties of the law should he fail to compel his wife to attend school.

Thus, while the law makes such a girl between 16 and 18 years of age subject to attendance upon continuation classes, nothing can be done to enforce or compel her attendance.

A TEACHERS' CONTRACT

The school board of Springfield, Ill., has adopted a new teachers' contract which involves some features not included in the old contract. One clause provides that a woman teacher who marries after accepting a contract may not begin service for the school year, or if she marries after beginning teaching, she may not continue in service. Another clause requires that members of the teaching staff shall present a certificate of good health and physical fitness. No employee will be released from a teaching contract, except for reasons of health or physical disability. A third feature stipulates that a teacher, supervisor, or principal who accepts another position while in the employ of the board and leaves before another teacher is secured, must pay 5 per cent of his or her yearly salary as damages.

TEACHERS AND ADMINISTRATION

♦ Parma, Ohio. Teachers in the schools will receive only one half of their regular salary increases during the coming year, due to the condition of the school treasury. The failure of the schools to meet the increases has been attributed to the

amount of money owing to the board from delinquent taxpayers.

♦ Chattanooga, Tenn. Teachers in the city schools have been granted increases of \$5 a month for the next year.

♦ Bristol, R. I. Salary increases amounting to \$1,200 have been granted to nine teachers, supervisors, and principals.

♦ Gloucester, Mass. The school board has adopted a new policy, which provides for the combining of the offices of high-school principal and superintendent. Those affected by the change in policy are William F. Eldredge, superintendent of schools for the past 25 years, and Morton H. Wiggin, principal of the high school for five years.

♦ The state educational department of North Carolina, in a recent statement, points out that over 50 per cent of the high-school teachers teach in one field. The study concerned itself with 4,570 high-school teachers who were employed during the school year 1929-30, which indicated that 2,320, or 50.8 per cent of the total taught in one field, 1,879, or 41.1 per cent in two fields, 277, or 6.1 per cent, in three fields.

English is taught more often than any other subject, a total of 432 teachers specializing in that field. Mathematics is next, with 341 teachers teaching in that subject. Science comes third, with 250 teachers engaged in that subject.

The most popular combination is English and French, taught by 279 teachers. Next is mathematics and science, with 204 teachers giving their full time to those subjects.

♦ New York, N. Y. Permanent tenure for teachers who serve in the community centers, vacation playgrounds, and summer schools of the city has been urged by the board of examiners in a report to Supt. William J. O'Shea. The request is intended as an improvement of the present system of appointing teachers from year to year, and of placing them anew on the eligible lists each year.

Such a reform, according to the examiners, would bring about considerable economy in time, labor, and funds as far as the examiners are concerned.

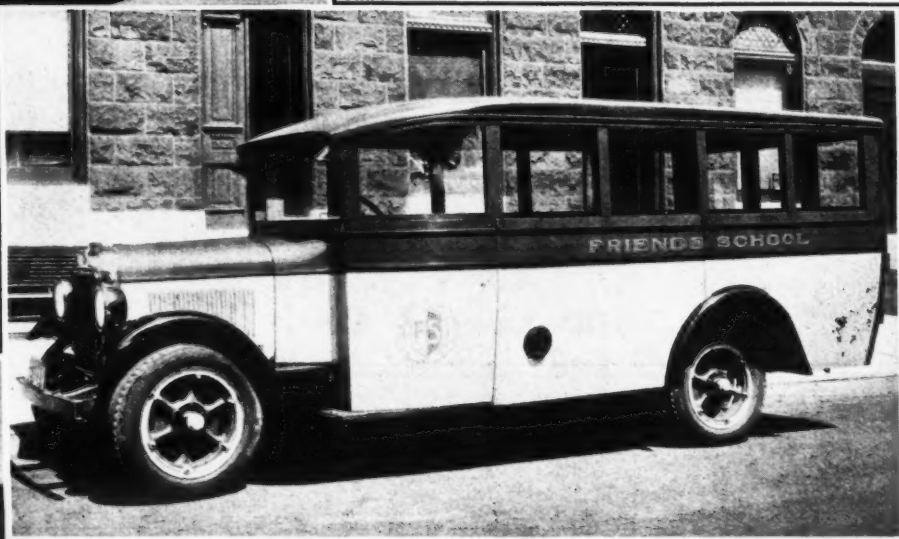
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Endorsed by school

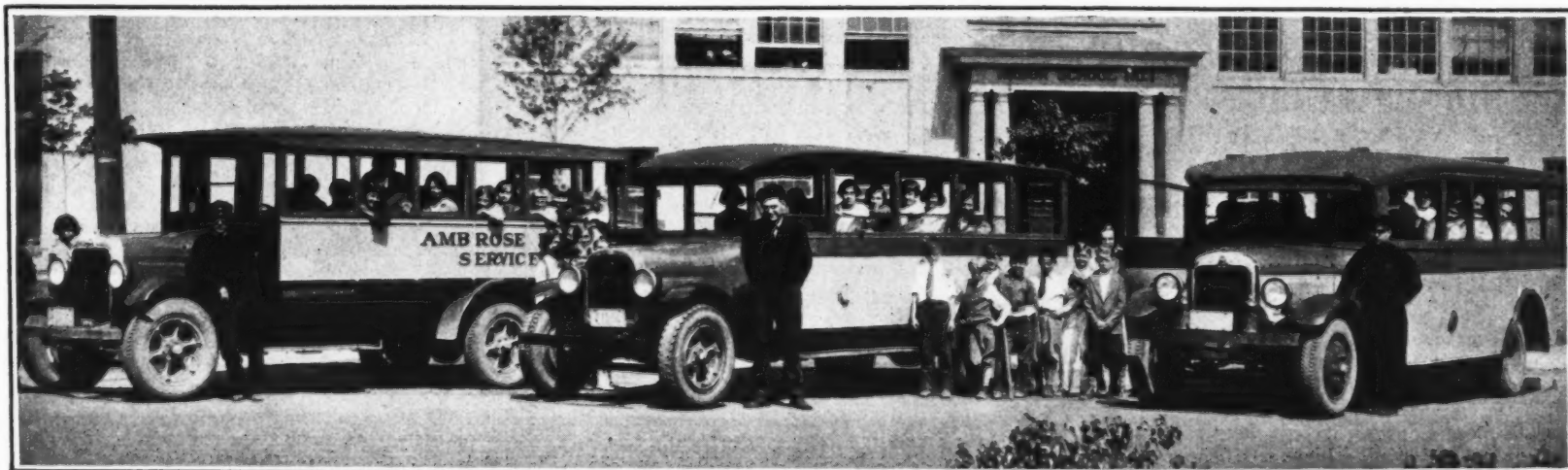


"They have proved most satisfactory under rather trying conditions."—A. J. Duncanson, Supt., East Jordan Public Schools, East Jordan, Michigan

"The children prefer it to others . . . we are also quite well satisfied up to the present time with the low cost of operating."—W. S. Pike, Principal, Friends School Baltimore, Md.



"I am thoroughly convinced that complete factory jobs are the best investment for school districts," says B. C. Loth, Clerk and Treasurer, Sevier School District, Richfield, Utah

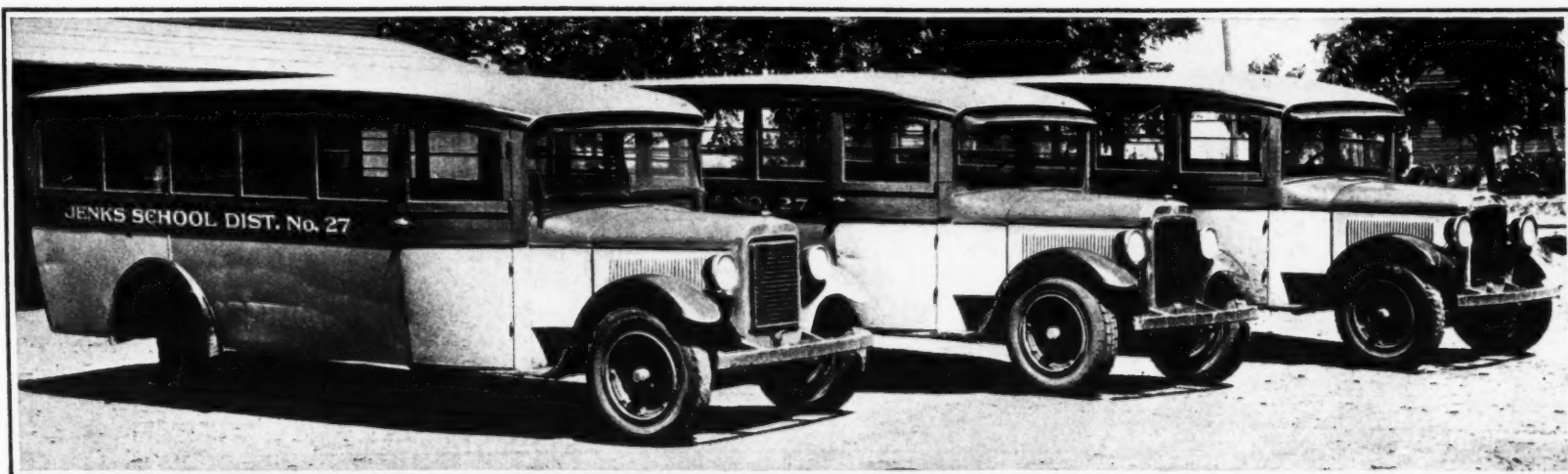


These three Dodge Brothers School Buses, operated by the Ambrose Transportation Co., Arbor-Dunellen, N. J., provide safe, comfortable and dependable service for pupils of Arbor School No. 1

officials everywhere

. . built as an entirety

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"We intend to make the Dodge buses our means of transportation for our entire system," say officials of the Jenks Public Schools, Jenks, Okla., who now operate three economical Dodge Brothers School Buses

"The Dodge is proving highly satisfactory in every particular."—St. Albans, Washington, D. C.

School officials in every section of the country enthusiastically endorse Dodge Brothers School Buses. Their experiences have proved that these sturdy buses serve dependably at low cost and carry pupils safely and comfortably. Unit-built—chassis complete with body—these attractive, reasonably-priced buses are available in sizes to fit all school needs.

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BODY BY PLYMOUTH

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TO THE task of Building Better School Bus Bodies, Plymouth Body Works brings an experience of more than three decades. Since motorized transportation first became a National problem, this Company has been in the forefront in the field of coach design and construction. Today the Plymouth School Bus Body offers features of safety, comfort and convenience that place this Bus Body in a class by itself. That is why Plymouth School Bus Bodies are receiving such decided preference by School Authorities everywhere—a better first buy—a longer useful life—a bigger value for the dollar invested.

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An interesting new Booklet has just been prepared that gives valuable information regarding school bus transportation. It should be in the hands of every official. It is entitled "Saving Money on School Bus Transportation." Send for your free copy today.

PLYMOUTH BODY WORKS

"Makers of Plymouth School Bus Bodies
Famous as Plymouth Rock"
PLYMOUTH, INDIANA

(Concluded from Page 101)

♦ New York, N. Y. Women teachers, who have been complaining that the men are getting all the higher supervisory positions in the schools, will have their share of the positions in the appointments to be made by the board of education. Two junior-high-school principalships, one the principalship of the Brooklyn Industrial High School and the other the district superintendency left vacant by the retirement of Dr. Thomas O. Baker will go to women, it has been announced. Of three junior-high-school principalships, about to be vacated, two are certain to go to women. The board of superintendents has selected five women elementary principals for interviews in connection with these two places, leaving the third for later selection.

♦ Pueblo, Colo. The school board has raised the standard requirement for teachers in the north side schools to three years of college or normal training. The change takes effect in September at the same time the standard minimum for securing a teaching certificate is raised at the teachers' colleges and other state institutions.

♦ Cleveland, Ohio. The school board has adopted a salary schedule, recommended by Supt. R. G. Jones, providing for a general increase in salaries for assistant superintendents and department heads.

Under the schedule, assistant superintendents will be given increases of from \$250 to \$500 a year, and department heads increases of \$100 to \$200 a year.

The schedule provides that Assistant Supt. Charles H. Lake shall receive \$9,500, Assistant Supt. A. C. Eldredge \$8,500, and Assistant Supts. H. M. Buckley and H. A. Bathrick \$7,500 each.

♦ St. Joseph, Mo. Through a policy of strict economy, the school board has been able to give salary increases to 28 per cent of the teachers for the next year.

♦ The New York City board of education promises an annual expenditure of \$500,000 to relieve the teacher unemployment situation. There are 3,446 unappointed teachers. The committee in charge is planning to assign a number of teachers to the care of retarded children.

♦ Ottawa, Ill. The school board has adopted new rules governing the appointment of teachers. Under the rules, applicants for teaching positions in the second grade must have two years' training in a normal school, or the equivalent in a college or university. In the first and second grades, the same preparation of sixty semester hours of work will be required.

Teachers with the necessary preparation, but without previous experience, will begin at \$1,000 for the first year, and advance to \$1,050 the second year. An increase of \$75 will be given for each subsequent year, until the maximum salary is reached. Experienced teachers will be rated according to the number of years of experience, but the salary for the first year in the local schools is limited to \$1,200.

♦ A complete reorganization of the teachers' retirement fund system of Michigan has been proposed by the officials of the system. Prof. J. W. Glover, of the University of Michigan, consulting actuary for the fund board, has estimated that it will require a contribution of \$16,000,000 to place the system on a sound financial basis. He suggested that \$800,000 be turned into the fund annually for forty years, the contribution to be handled on a 50-50 basis between the state and the teachers participating in the system. The fund has liabilities of \$19,514,061 and assets of \$3,680,763.

♦ San Francisco, Calif. A schedule of further increases in pay for principals has been adopted by the school board. Under the schedule, principals in senior high schools, with 59 or less teachers, will receive \$4,800, in place of the old rate of \$4,350. Principals with 60 or more teachers will receive \$5,100, in place of the present rate of \$4,500. Principals in continuation schools will receive \$4,500, instead of \$4,250.

SCHOOL-BOARD NEWS

♦ Winfield, La. The school board has reduced the number of teachers, combined transfers, and placed the teachers on a salary basis, with a saving of between \$3,500 and \$4,000. The board voted to discontinue five rural schools and to take care of the students in near-by high schools.

♦ Attorney General Carlstrom of Illinois has issued a ruling which is to the effect that a school board must have a good and sufficient reason in order to dismiss a teacher. The attorney held that while the power of a board to cause the removal or dismissal of a teacher is dependent upon the opinion of the board of education, the courts do not construe the statute as giving the school board the arbitrary power to discharge a teacher. A school board, said the attorney, must consider the interests of the school and base their opinion upon the interests of the school.

♦ The Ford Motor Company, which pays 70 per cent of the taxes in the school district of Fordson, Mich., has issued a report of its auditors, charging the district school board with "padding" its 1929-30 budget to the extent of \$200,000.

♦ St. Joseph, Mo. The school board has adopted a new policy in school-board deliberations. Under the new policy, only the spokesman of a delegation bearing a request to the board may be admitted to the board room. The leader of such a group will be heard only at executive sessions of the board. The action is expected to expedite matters coming before the board, and to permit of greater attention to matters of business.

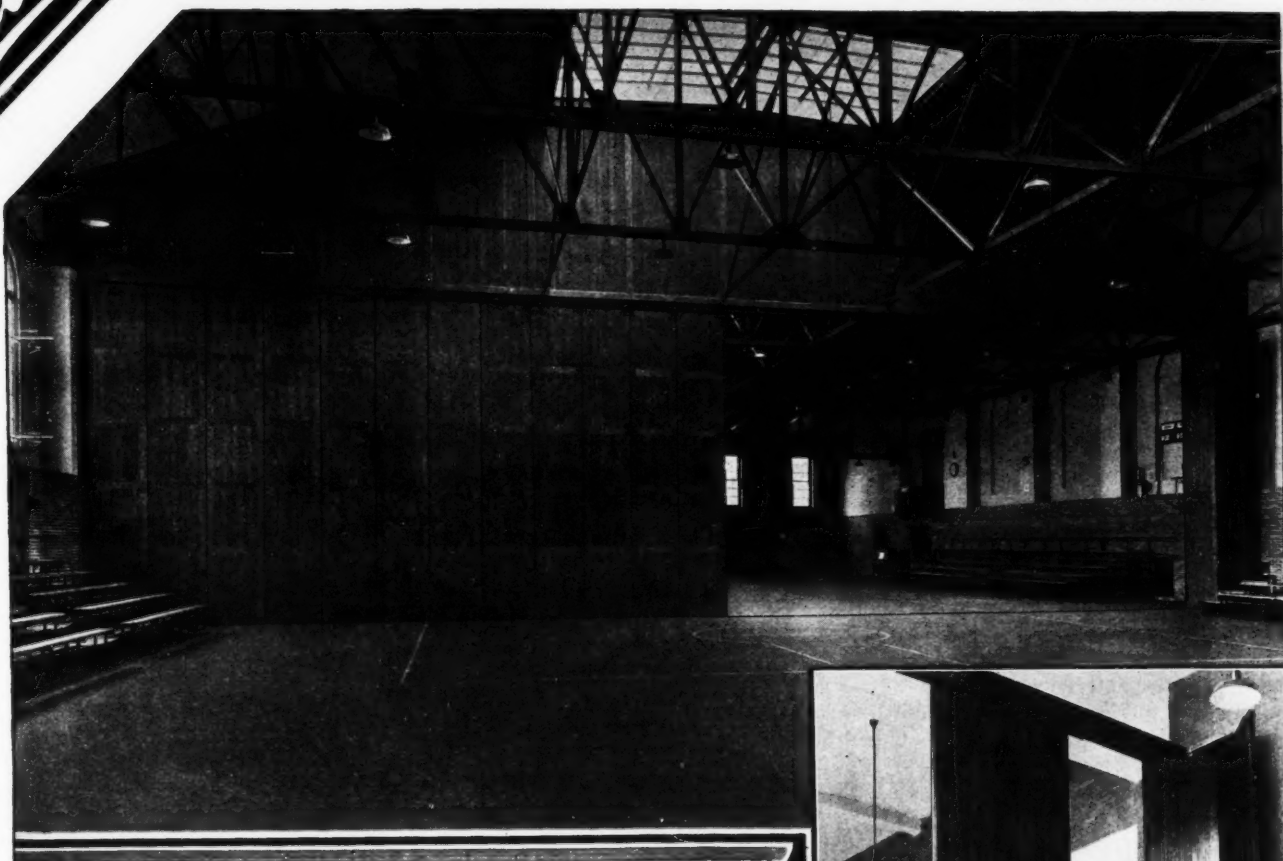
♦ New York, N. Y. The board of education has asked the corporation counsel for a ruling on the right of parents to keep their children out of school for special celebrations and festivals. The action was taken in response to a contention of the Socialist party that school attendance officers have no right to take the names of children who attended the party's May Day rally. Louis Waldron, co-chairman of the party's committee on public affairs, had submitted a letter citing an Appellate Division decision in support of the argument that children accompanied by their parents are not truants.

♦ On July 1, the name of the Mt. Auburn School at Cincinnati, Ohio, was changed to the William Howard Taft School.

♦ Little Falls, Minn. The school board recently made a study of fire-insurance rates. It was pointed out that an expenditure of \$250 in fire extinguishers and hose would effect a saving in premiums of \$200 per year on an 80-per-cent coinsurance plan.

*Wilson***SECTIONFOLD PARTITIONS**

(REG. U. S. PAT. OFF)



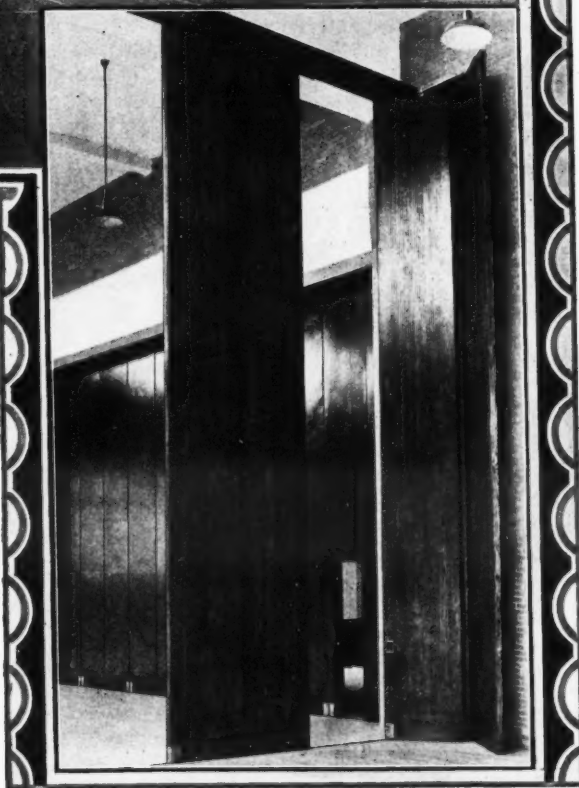
Wilson Sectionfold Partitions in Gymnasium of McKinley Technical High School, Washington, D. C. Note movable bleachers with partitions folded between them.
Albert L. Harris, Municipal Architect.

FOR THE FLEXIBLE "GYM"

FOR separate or combined classes or games, subdivision of the modern gymnasium is accomplished by Wilson Sectionfold Partitions as illustrated above.

The doors are usually 3" thick with flush surfaces both sides, avoiding deflection of basket balls, hand balls, etc., and preventing injury to players thrown or falling against the Partitions.

In many gymnasiums no provision is made for permanent seats or bleachers and movable ones are used. The partitions may be arranged to fold between, or in designing the building, pockets into which the Partitions fold may be provided and when the entire gymnasium is to be used a clear wall space entirely around it is obtained. Movable bleachers may be



Wilson Sectionfold Partitions in gymnasium of Hyde Park High School, Boston, Mass. Note pocket door, also pocket which allows folded partitions to set flush with walls.

placed in front of the pockets to provide additional seating capacity.

Full details and illustrations showing how Sectionfolds will increase gymnasium and classroom facilities of modern schools are shown in our Catalog.

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Also Manufacturers of Rolling Partitions and School Wardrobes.

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OVER FIFTY YEARS IN BUSINESS

School Supplies—Purchase and Distribution

The subject of selection, purchase, storage, and distribution of school supplies and equipment is receiving attention with increasing care and interest at the hands of modern school administrators. With the increased costs which have attended the schools throughout the land there is also the tendency toward a closer scrutiny of even the smaller budget items. The question of economy, which is uppermost in the minds of conservative administrators, becomes of even greater concern when funds are not as liberally supplied as the needs of an efficient school system may demand.

The National Association of Public School-Business Officials engaged in a study of the subject designed to bring to the fore the economies involved within the range of school supplies. A representative committee of that organization sent out a questionnaire which contained 14 questions and brought answers from 106 cities. These answers were summarized and set forth in a report.

Who Determines Upon Supplies?

The question as to who determines the amount of money to be expended for textbooks and supplies, and whether the total amount is for the school district as a whole, or based upon each individual school or other activity, is answered variously. The superintendent of schools, or supervising principal, is the authorized official in 47 cities ranging in size from one million population to fifty thousand. In eleven of the smaller cities the authority is lodged with the superintendent, supervising principal, and secretary or clerk. In four cities, the superintendent and business manager determine, and in three the business manager only, in one the clerk or business manager, and in one the superintendent of supplies.

In one city the authority to determine upon school supplies is in the hands of a director of supplies, in four a purchasing agent, in one with the superintendent, principal, or treasurer, in two with a committee of the board of education, and in two with the county school board. The report adds:

"You will note, therefore, that the superintendent functions as the responsible budgeting officer in 47 of the 77 districts whose reports were used, and that he participates in, or works in, cooperation with other officials in 16 other districts. Business officials seem to be responsible in only 10 districts. We must realize, however, that in practically all of the smaller districts the superintendent is the sole executive officer, and of course is the only one to whom the board in these districts looks for the budgeting and expenditure of the funds of the district.

Central Supply Storehouses

The inquiry touches upon central warehouses that direct delivery from the vendor to the schools. Here it is found that 80 of the larger cities maintain a central storehouse for receiving and delivering school supplies. In this connection it is mentioned that it is the tendency of the smaller cities to also adopt this method.

The arguments advanced in favor of handling supplies in this manner are to the effect that there is a saving in quantity purchase, better control, and check on deliveries, and economy in distribution. It would indicate, says the report, that the principal advantage in having goods delivered by vendors to a central storehouse is the better control and check on deliveries, and in some cases emphasis is placed on the greater certainty of securing the quality called for in the specifications.

Another important fact brought out is that it makes unnecessary the large inventory of material required if each school were allotted its total requirements for a specified period of time.

Some forty-odd cities do not maintain a central storehouse, but have deliveries made direct by the vendor to the school. Here some variations follow in that some school districts ask for direct deliveries on large and bulky quantities only. The report adds:

"It is certain that no district has all kinds of supplies at all times delivered to a central storehouse, because there are many kinds of materials used in all school districts, such as furniture and other bulky material, which it would be foolish to have handled twice, consequently, we may assume that all districts follow this practice, more or less, but the returns indicate that only certain districts use the so-called duplicate system.

Who Makes the Selection of Textbook?

The answers to this question indicate no uniform method of the selection of textbooks. The answers as to those who make the selection are enumerated as follows:

Superintendent of schools, or supervising principal — 28 cities.

State textbook commission — 6 cities.

Committee of assistant superintendents, principals, and teachers — 36 cities.

State department of education — 15 cities.

Superintendent of schools with committee of board — 8 cities.

Committee of the board — 3 cities.

State adoption for elementary schools — 3 cities.

In isolated cases, the selection is left to the superintendent, in conjunction with the high-school faculty, with assistant superintendents, or with a board of examiners.

Who Selects Educational Supplies?

The report here has it that "the replies to this question indicate a lack of definiteness. We find that, in a number of cases, the business manager, secretary or clerk, or some other official in the business department is a party to the selection of educational supplies. We do not think this is the case except, probably, in a few instances. It was not the purpose to find out who was responsible for ordering the supplies for the individual school, but to learn whose duty it was to decide upon what kind of supplies should be used in any of the school districts. There is a greater variety of administrative officials responsible for this phase of administration than exists in the selection of textbooks, but, of course, the superintendent of schools, or the supervising principal has the lead, as he should have in every school district."

"It is our belief that it is hardly the function of a representative of the business department to have much to say about the kind and quality of material required for instruction purposes. He would, however, be justified in interesting himself to the extent of calling attention to the excessive costs of a certain kind of material

THE PARENTS' GOOD EXAMPLE

"Do as I say, not as I do," is the lesson many modern parents try to teach their children, a lesson which it is almost impossible for youth to learn, and justly so. Is your child a "chip of the old block"? Usually he is; and so it behooves you to see that the "block" is sound, simple and sane. If the "block" itself be worth while and that the future of America is one that the Builder will not reject, we can be pretty sure that the "chips" are going to be worthwhile and that the future of America is assured in the preservation of its fundamental unit, a happy and contented family in a well-regulated and efficient home.—L. A. Wilkes, M.D.

whenever a cheaper article will, in every respect, serve the purpose as well, and if there should be a decided difference of opinion between the educational department and the business department on matters of this kind, the board of education, itself, should decide the issue.

Janitors and Office Supplies

The authority to make selection of supplies such as janitors' paraphernalia, miscellaneous office supplies, furniture, apparatus, and the like, is by no means uniformly fixed. Taking the larger cities into account it is found that the authority varies so widely that almost every city has its own way of doing things. Thus the authority is vested in the following:

Committee appointed by superintendent.

Approved by superintendent.

Superintendent and business manager.

Superintendent and treasurer.

Superintendent and department heads.

Superintendent and purchasing agent.

Assistant superintendent.

Approved by business managers.

Purchasing agent, or secretary, or clerk.

Superintendent of buildings.

Superintendent and city council.

Approved by janitors.

Approved by department heads.

Approved by city property commission.

The comment made by the report says: "In 34 cities and towns the superintendent approves the selection. In 24 cities and towns the superintendent, business manager, treasurer, and heads of departments make the selection and in 42 cities and towns the superintendent appoints committees to act. It is interesting to note that the superintendent of buildings has a part in making selections in some instances."

The deliveries called for vary also. Some school systems exact one delivery a year, others two deliveries, and still others monthly or semi-occasionally. The contention in behalf of frequent deliveries is that it prevents waste, saves space as far as stockroom is concerned, and obviates the tie-up of money.

In the matter of allowing substitutes for material called for the policy of the several cities differs also. Some allow substitutes, others do not. The committee report says:

"It is surprising the smaller number of the larger cities which allow substitutes and the large number of smaller cities and towns that do not allow substitutes. It is the belief of our committee that it is unfair to vendors not to allow substitutes.

Advertising for Bids

In 37 cities of the larger size the board of education proceeds to advertise the specifications under which supplies and equipment are purchased. In six cities, the purchases are made under specifications, but no advertising is used in inviting bids.

As a rule, the amount fixed at which bids must be invited ranges near the \$250 mark. In a few cities, the figure is set at \$3,000, in some at \$1,000, and in others at \$500.

The question whether those authorized to select supplies counsel with the heads of departments on materials before purchases are made, is variously answered. Some hold that it is necessary to such counsel, others hold that it is not. The report says:

"This analysis shows that out of 89 cities and towns who counsel with heads of departments most of the favorable replies are of the smaller-size cities and towns. We believe that a great deal of trouble can be avoided if heads of departments are taken into confidence before specifications are prepared."

The Basis of Distribution

The amount of material accorded to each school is usually based upon past experience,

(Concluded on Page 108)

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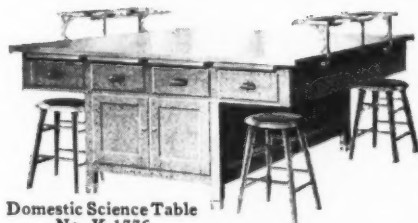
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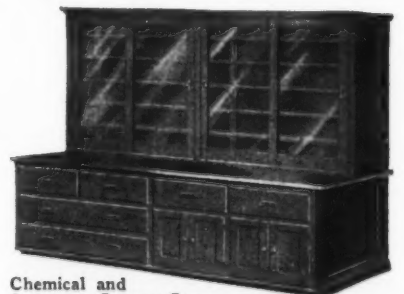
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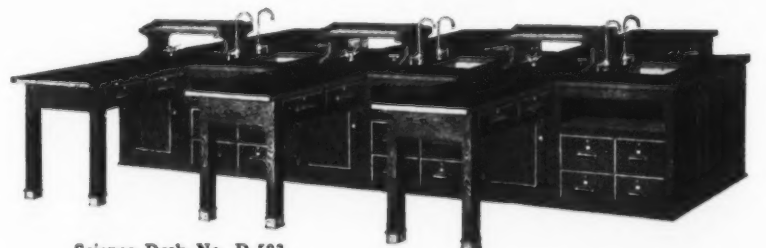
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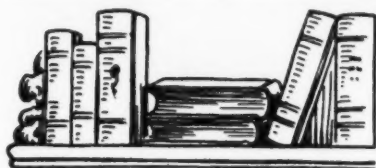
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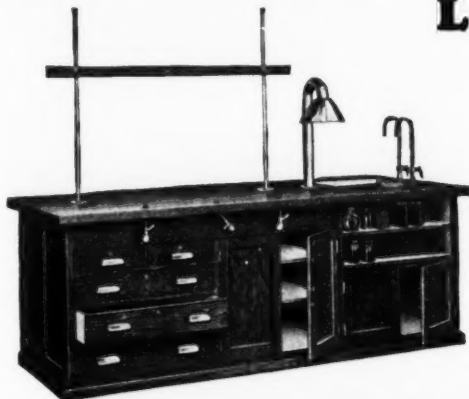
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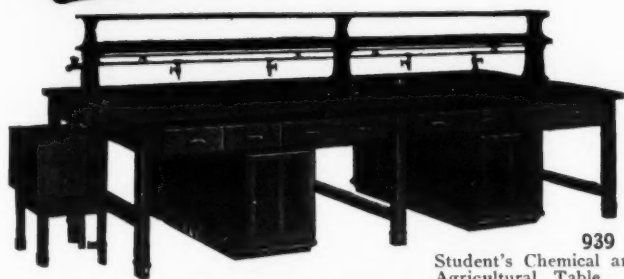


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(Concluded from Page 106)

and regulated by those in charge in the light of new needs and the immediate economies involved. Sometimes the quantity is limited by the appropriations made, or by board action. Usually those who have in charge the selection of supplies are also intrusted with their distribution.

The committee of the National Association of Public-School Business Officials, consisting

of J. G. Mullan, chairman; H. B. Zeringue, Albert Austermuhl, J. O. Adams, and Samuel Gaiser, in submitting the results of its inquiry, is of the opinion that it should strive for greater economy and efficiency in the matter of dealing with school supplies and equipment. While there should be considerable freedom in the forms and blanks employed in specifying supplies, there should be definite agreement as to the essential facts that should be stipulated.

the younger. The rate for normal or above normal hearing among the children of 14 years and over was 27 per cent greater than the rate in the eight- and nine-year group. Similarly, loss of hearing (three units) was so slight as to have little significance and was clearly much less among the older children. In the case of hearing loss of nine or more units, the reverse was true. While the percentage of children having this degree of defect was low throughout the age period studied, there was a consistent rise in the curve from the youngest to the oldest group. Among the actually hard of hearing, the older children were in the majority. In the loss of six units the curve of incidence in the various age groups showed no consistent rise or fall.

In a comparison of the sexes, it was seen that, although there was a higher percentage with good hearing among the younger boys than among the younger girls, after a period between the ages of 11 and 12, the excess was in favor of the girls and was greater than that in favor of the boys in the younger groups. In the highest grade of hearing loss there was no age group in which the proportion among the boys was less than that among the girls. It may be said in general that there was slightly more marked impairment of hearing among the boys of all ages than among the girls.

Comparing the two groups of children, it was found that, with the exception of the youngest children, there was a larger percentage with normal or above normal hearing in the Washington group than in the Hagerstown group. Among the older children, the summer school had the highest percentage of normal or above normal hearing.

In the matter of significant hearing loss, there was little difference among the three groups when all ages were considered. In no group at any age, both sexes considered, did the percentage of those with significant hearing loss rise as high as 4. In the Washington school, the peak was reached at the 12-13-age period, with a percentage of 3.3. In the Hagerstown schools and the Washington summer school, it was in the oldest age period that the highest percentages were seen, 3.8 in the Hagerstown schools and the Washington summer

(Concluded on Page 110)

School Hygiene and Sanitation

MEASURING THE HEARING OF SCHOOL CHILDREN

The hearing of older school children seems to be better than that of younger children, according to the findings of a study of 1,860 pupils, conducted by the United States Public Health Service. Children who have distinctly bad hearing also do distinctly poor schoolwork; significant loss of hearing occurs among children in the group having the lowest intelligence quotient.

A study of the hearing acuity of school children was begun in Washington D. C., in August, 1927, in one of the summer schools of the city. The study involved 710 children in Washington and 1,150 in Hagerstown, Md., and was carried on with the cooperation of the school authorities. The investigation was continued during the regular session of the schools to the end of that year, and in January, 1928, was begun in the schools of Hagerstown.

In the Washington summer school as many children were tested as possible and in the regular school session the entire class was tested. In Hagerstown, all the pupils were tested in the class selected. The selection of pupils in the various groups was on the basis of the schoolwork and was made by the school authorities.

In the conduct of the tests, a new audiometer was used and the pupils were seated in positions which made copying or comparisons impossible. Eight earphones were used at a test. Of the 710 pupils tested in Washington, 158 were given two tests, making in all 868 tests in that city. Most of the children retested were selected because their original test showed a marked hearing loss. In a limited number of good scores, retests were made to find out whether the same score could be obtained.

The school grades of the children tested ranged from the third to the ninth inclusive, and the ages ranged from 8 to 17 years. In the third and fourth grades, the 2-number test records 3 and 4 were used; and from the fifth to the ninth inclusive, 3 and 4 were used; and from the fifth to the ninth inclusive, 3-number test records 1 and 2 were used. It was assumed that the older children may have understood the nature of the test better than the younger ones and may have obtained a better rating because of this superior understanding. However, since no child under 8 years of age was tested, this factor may have had little influence on the results.

The findings showed that, among the older children, there was more good hearing than among

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(Concluded from Page 108)

school, it was in the oldest age period that the highest percentages were seen, 3.8 in the former, and 3.7 in the latter. A higher percentage of girls in both the regular and summer schools of Washington had normal and above normal hearing than in the case of the boys. In Hagerstown, the boys had the advantage, except in the oldest age group. In Hagerstown, there were more girls with slight hearing loss, but with the most serious grade of hearing loss there were slightly more boys than girls. In the Washington schools, with both grades of slighter loss of hearing there were, in general, more boys affected than girls in the regular session schools. In the summer school, more girls had a loss of three units, while more boys had a loss of six units.

A comparison of the boys and girls in the three school groups showed that there was little difference in the amount of good hearing among the boys in the Washington schools (regular session) and in those in the Hagerstown schools. The boys in the summer school, however, had a decidedly higher percentage of good hearing than in either of the other two groups. In the matter of poor hearing (loss of nine or more units) the boys of neither group consistently exceeded those of the other two groups.

In the case of the girls, there was a decidedly higher percentage of the Washington girls with normal or above normal hearing than the Hagerstown girls. The oldest girls in the regular session of the Washington schools excelled even the girls of the same age in the summer school, though the summer-school children were superior to those of the Hagerstown or Washington regular-session schools.

In a test of the ears separately, an effort was made to determine in which ear the various grades of hearing were more prevalent in a group of 1,860 children. In every instance, except in the case of girls in the summer school, a higher percentage of left ears had good hearing than of right ears. This was true of the group as a whole and of each separate group. The difference was most marked in the case of girls in the Washington and Hagerstown schools. In the highest grade poor hearing,

however, a higher proportion of the right ears was found to have this defect. The reverse was true among the boys in the Washington schools, while the percentage among the girls in the summer school was equal in the two ears. All ages considered, it was evident that the left ear was superior to the right among these children. There was one exception in the 12-13-age group, where the curve of good hearing in the left ear fell a little below that in the right ear.

It was noted that the predominance of poor hearing in the right ear was general in this group at all ages, except in the 12-13-age group. A larger number of girls of that age had poor hearing in the left ear, while in boys of the same age, there was no difference in the amount of poor hearing in the two ears. There appeared to be no reason for the difference in hearing, or why one ear should be better than the other.

A study of the age-grade status of the children, of the character of work done, and of the intelligence quotient revealed some interesting correlations between the hearing status and the factors related to their mental status. It was noted that the percentage of children with significant hearing loss was greater in the over-age group. Among the under-age children, there was no apparent loss of hearing. Among the over-age children, the percentage was more than twice as great as among the age-for-grade children with all ages considered. In the 10-11 year group there was little difference in the amount of hearing loss, but in the 12-13 year group the percentage among the over-age children was twice that among the age-for-grade group. In the oldest group there was no loss among the age-for-grade group, but among the over-age group the percentage was 3.8.

The study revealed that significant loss of hearing increased as the character of the work grew poorer. In other words, among the children doing the poorest work there was the largest amount of serious hearing loss. This was especially true of the youngest and oldest age groups. In the two intermediate groups, 10-11 and 12-13, there was much irregularity.

In the case of the intelligence quotient, it was noted that the greatest amount of defective hear-

ing was among the children with the lowest mental status. While the number of children with serious loss of hearing was small, there appeared to be some justification for assuming that children with defective hearing are handicapped in their school-work. While defective hearing might not affect "native" intelligence, still it was felt that failure to hear the oral presentation of a mental test might easily affect the child's intelligence quotient.

HEALTH CERTIFICATES REQUIRED FOR NEW PUPILS

New York, N. Y. Children who enter school for the first time next fall will be required to present health certificates prepared by the health department and signed by a physician, under new regulations sent out by Supt. William J. O'Shea to district superintendents and elementary-school principals. If parents fail to present the required certificate within ten days after the admission to school of their children, the names of the pupils will be sent to the medical inspector who will make the medical examination as required by law.

Until last term, only 10 per cent of the children entering school for the first time presented certificates of medical examination. The remainder had to be examined by the school medical inspectors, which threw a heavy burden upon the school medical staff, whose services are needed in other directions, notably in the follow-up of children suffering from serious health defects, and in consultations with parents, principals, and teachers.

In his circular to the school staff, Superintendent O'Shea pointed out that children are frequently admitted to school who suffer from remedial defects. Children who are free from physical defects have a better opportunity, he said, to make normal progress in school than children who have physical defects.

♦ **MR. CHARLES D. HAYNES** has been elected superintendent of schools at Missoula, Mont., during the next year. Mr. Haynes will serve in place of Mr. Ira B. Fee, who has been given a year's leave of absence to pursue a graduate course in Harvard University.

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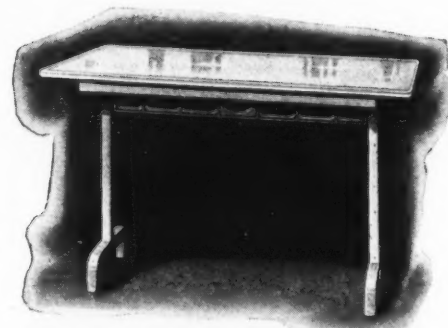


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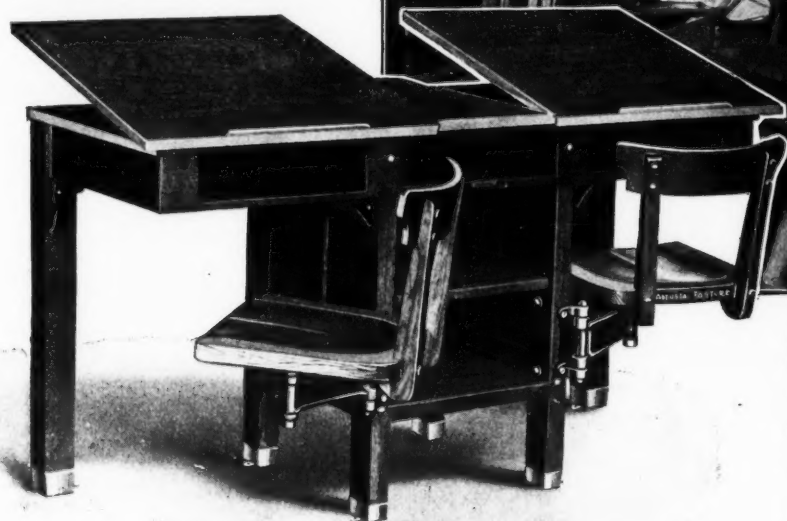
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Superintendents

♦ DR. GUSTAVE STRAUBENMULLER, associate superintendent of the New York City schools, who has been in the school service of that city for a half century, was tendered a testimonial dinner recently. The tribute of the evening was that "he was eternally young, young in spirit, in sympathies, and in attitude."

♦ MR. C. E. REDMAN, of Dresden, Ohio, has been elected superintendent of schools at Roseville, to succeed M. G. Calhoun.

♦ SUPT. R. C. HILL, of Monroe Center, Ill., has been reelected for another year.

♦ MR. J. T. HEFLEY has been elected superintendent of schools at Stillwater, Okla., to succeed C. P. Davis.

♦ MR. E. D. MURDOCK has been elected superintendent of schools at Lidgerwood, N. Dak., to succeed Adolph Paulson.

♦ MR. CARLTON F. WHEELER, who was removed as school superintendent at Barnstable, Mass., last June, has been reappointed to his former position. Voting against his appointment were Dr. E. C. Hinckley and Mrs. Sarah Sears, who brought about his removal last year. On his side were S. F. Scudder, Richard Cobb, and Arthur Duffin.

♦ MR. W. L. ALWOOD has been elected superintendent of schools at Coloma, Mich., to succeed L. L. Close.

♦ MR. J. H. DICKASON has been elected superintendent of schools at Mt. Eaton, Ohio. Mr. Dickason was formerly a member of the Wooster College faculty.

♦ SUPT. J. E. WARREN, of Lakewood, Ohio, has been reelected for a three-year term.

♦ MISS ELEANOR, of York, Pa., has been appointed assistant superintendent of schools at Lakewood, Ohio.

♦ MISS SYLVIA KLEINSMITH, formerly director of measurements at Lakewood, Ohio, has been appointed as principal of the Madison School, to succeed Miss Ada Gedney, who has retired from the service.

♦ SUPT. E. F. BERKLER has been reelected as superintendent of schools at Arthur, Iowa.

♦ SUPT. O. E. BALYEAT of Sparta, Mich., was the guest of honor recently in celebration of his twenty-first year of service in the local school system. Graduate students from 1909 to 1930, as well as teachers, and board members were in attendance. Mr. Balyeat was presented with a number of silver coins.

♦ SUPT. C. C. CRAWFORD, of Ada, Ohio, has been reelected for a ninth term.

♦ MR. H. S. MATTHEWS, of Waycross, Ga., has been elected superintendent of schools at Alma.

♦ MR. FRANK DUFRAIN has been elected assistant superintendent of schools at Pontiac, Mich. The position has been created under a new plan of administration, in which responsibility for the business office, as well as the educational affairs, is vested in Mr. J. H. HARRIS, superintendent of schools.

♦ MR. WESLEY WALBURN has been elected superintendent of schools at Chauncey, Ohio.

♦ MR. BASAL JOHNSON has been elected superintendent of schools at Aberdeen, Ohio.

♦ MR. P. W. KERR, of LaFollette, Tenn., has been reelected for another year.

♦ MR. M. L. BRIDGES, formerly of Bulls Gap, Tenn., has been elected superintendent of schools at Fayetteville, Tenn.

♦ MISS MABLE BRAGG, assistant superintendent of schools at Newton, Mass., for the past fifteen years, has accepted a position on the faculty of Boston University.

♦ SUPT. A. H. HATHAWAY, of Lynchburg, Ohio, has been reelected for the next year.

♦ SUPT. C. D. STEINER, of Pandora, Ohio, has been reelected for a three-year term.

♦ MR. D. A. PYERS, of Rushsylvania, Ohio, has been elected superintendent of schools at Mt. Victory.

♦ MR. C. H. RAUSCH has resigned as superintendent of schools at Jefferson, Ohio, in order to complete his work for a master's degree at Ohio University.

♦ MR. C. J. POWELL has been elected superintendent of schools at Aberdeen, Wash.

♦ MR. H. B. ALLMAN, of Rushville, Ind., has been appointed assistant professor of secondary education at Indiana University.

♦ SUPT. H. M. PRICE, of George, Iowa, has been reelected for another year.

♦ MR. L. A. LOCKWOOD, formerly principal of the high school at Rushville, Ind., has been elected superintendent of schools, to succeed H. B. Allman.

♦ MR. E. W. ELLIS, formerly principal of the Woodstock Academy, has been elected superintendent of schools at Farmington, Conn.

♦ SUPT. F. U. WHITE, of Galva, Ill., has been reelected for another year.

♦ MR. G. E. DENMAN, of Pocatello, Idaho, has been elected superintendent of schools at Burley.

♦ AGNES SAMUELSON is a candidate for state superintendent of Iowa, to succeed herself in office. The *Council Bluffs Nonpareil* says: "Miss Samuelson has proved herself exceptionally capable in this work. She came up from the farm through country school, city school, teacher, county superintendent and then on to the head of the educational work in the state. Her experience is practical and not theoretical."

♦ MR. W. G. LAMBERT, formerly supervising principal of the College Hill Schools at Beaver Falls, Pa., has been elected superintendent of schools of Beaver county, to succeed D. C. Locke.

♦ At Lakewood, Ohio, SUPT. JULIUS E. WARREN was reelected for five years. In comment on the election the *Lakewood Post* says: "If ever an educator has made good in a community in a short

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period of time, Warren has in Lakewood. A young man with a young man's enthusiasm and progressive spirit, it was expected that Warren would do things. We congratulate the board of education with a bit more of vigor than is usually expended in congratulating public officials."

♦ MR. V. B. HOYER, formerly principal of the high school at Battle Creek, Iowa, has been elected superintendent of schools, to succeed A. W. Coon.

♦ MR. FRED SHARE, of Lanyon, Iowa, has been elected superintendent of schools at Dakota City.

♦ MR. E. D. PRICE, superintendent of schools at Enid, Okla., for the past fifteen years, has announced his candidacy for the office of state superintendent of public instruction.

♦ SUPT. P. D. CANNAVAN, of Bettsville, Ohio, has been reelected for the coming year.

♦ SUPT. W. C. KUNCE, of Genoa, Ohio, has been reelected for another year.

♦ SUPT. L. A. PETERSON, of Logan, Utah, has been reelected.

♦ SUPT. J. D. SWEENEY, of Red Bluff, Calif., has been reelected for another term of four years.

♦ MR. E. L. VANDELLEN, of Salinas, Calif., has been elected superintendent of schools at Ventura, to succeed Melrowe Martin.

♦ MR. HOMER DAVIS, of South Bend, Wash., has been elected superintendent of schools at Okanogan for the next year.

♦ MR. W. R. WILLIAMS, of Unionville Center, Ohio, has been elected superintendent of schools at Mt. Sterling.

♦ MR. N. P. BLATT has been elected superintendent of schools at Manchester, Ohio.

♦ MR. C. D. MOORE, of Valley City, Ohio, has been elected superintendent of schools at Sharon Center, to succeed H. E. Kuntz.

♦ MR. DEWEY STONE has been elected superintendent of schools at Stoutsville, Ohio, to succeed H. S. Defenbaugh.

♦ MR. E. P. STONEBREAKER, of Leetonia, Ohio, has been elected superintendent of schools at Lowellville.

♦ SUPT. W. B. HAYES, of Newcomerstown, Ohio, has been reelected.

♦ MR. R. L. FORTUNE, of Atwater, Ohio, has been elected superintendent of schools at Mantua, to succeed B. O. Leeper.

♦ MR. H. P. LOHRMAN has been elected superintendent of schools at Strasburg, Ohio.

♦ MR. G. E. CARR, of McConnelsville, Ohio, has been elected superintendent of schools at Logan.

♦ MR. E. A. PREHM, of Olin, Iowa, has been elected superintendent of schools at Northwood, to succeed B. E. Beard.

♦ MR. L. A. LOOS, of Chrisman, Ill., has been elected assistant superintendent of schools at Lake Forest.

♦ MR. JOHN B. HAGEN, of Detroit Lakes, Minn., has been elected superintendent of schools at Deer River.

♦ SUPT. R. E. CORRILL, of Jamestown, Ohio, has been given the degree of bachelor of arts by Cedarville College. Mr. Corrill majored in education, history, and sociology. He is the holder of the state life and high-school life certificates.

♦ MR. O. F. PATTERSON, of Oakland, Ill., has been elected superintendent of schools at Shelbyville.

♦ MR. A. R. WHITE, formerly principal of the high school at Bryan, Ohio, has been elected superintendent of schools.

♦ MR. ROY KOHR, of Dundee, Ohio, has been elected superintendent of schools at East Sparta.

♦ SUPT. H. E. SCHWALL, of Wauseon, Ohio, has been reelected for the next year.

♦ SUPT. G. E. DILLE, of Chillicothe, Mo., has been unanimously reelected for a sixth consecutive term. Mr. Dille is teaching a course at the summer school of the State Teachers' College at Hattiesburg, Miss.

♦ SUPT. J. L. LAWING, of Maryville, Mo., was recently awarded the Ph. D. degree of Teachers' College, Columbia University.

♦ MR. T. E. STINETTE has been elected superintendent of schools at Lafayette, Colo., to succeed B. V. McCready.

♦ SUPT. L. A. WALKER, of Swanton, Ohio, has been reelected for a new three-year term.

♦ SUPT. C. E. EVANS, of Monett, Mo., has accepted a position in the state education department as supervisor of adult education. Mr. M. L. COLEMAN, of Dixon, has been elected as superintendent at Monett, to succeed Mr. Evans.

SUPERINTENDENT BOYER COMPLETES FORTY YEARS OF SERVICE AT ATLANTIC CITY, N. J.

Supt. Charles B. Boyer, of Atlantic City, N. J., was the guest of honor at a banquet on Saturday, May 24, when 700 citizens, city executives, and school teachers gathered to pay him honor on the completion of forty years of devoted service to the public schools of Atlantic City.

At the conclusion of the program, Mr. Boyer was presented with a testimonial booklet containing a number of gold pieces.

During Superintendent Boyer's long period of service, he has seen the schools grow from a high school of two teachers and 65 pupils to 105 teachers and 2,350 pupils. The elementary schools have grown from an enrollment of less than a thousand to 9,000 with a teaching staff of 255.

Mr. Boyer attributes the success and the recognition of the school system to the splendid classroom work of the teachers, to the unity of the teaching staff, and to the progressive leadership of the members of the board of education.

In addition to his work in connection with the local school system at Atlantic City, Mr. Boyer finds time to act as president of the state pension fund system, and president of one of the large banks in the city. He is a past-president of the state teachers' association and is a leader in the work of the National Education Association.

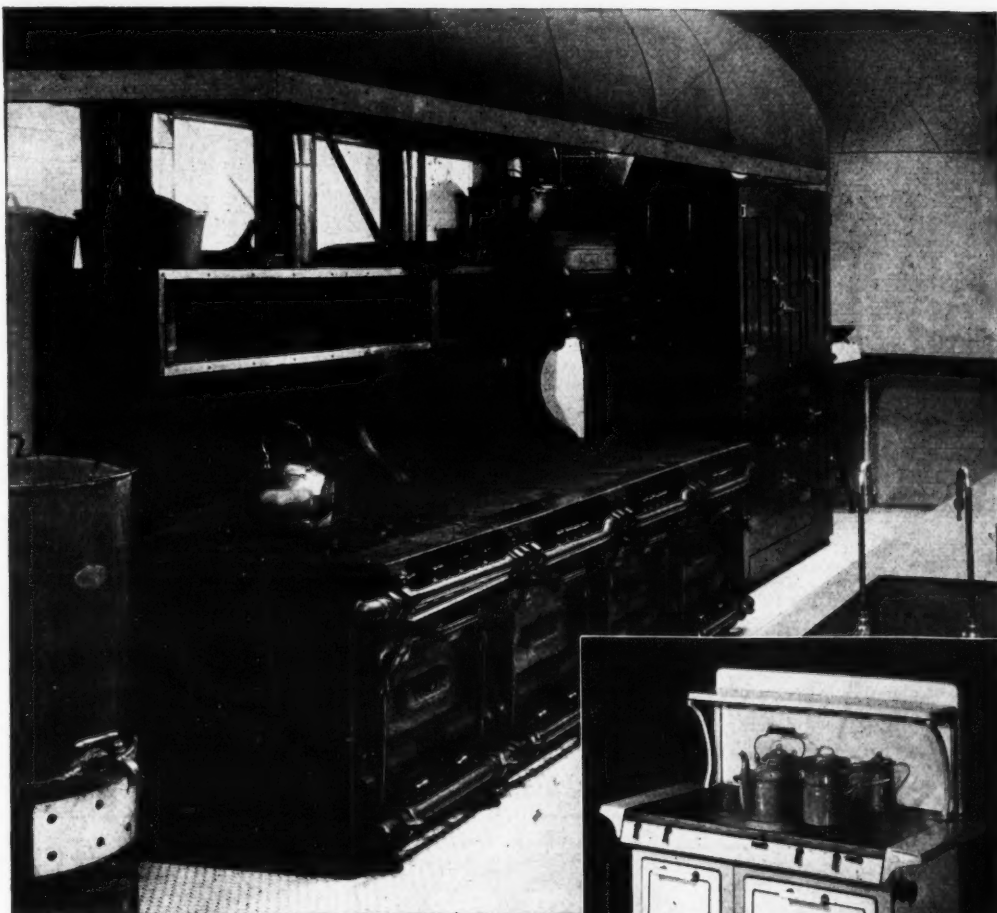
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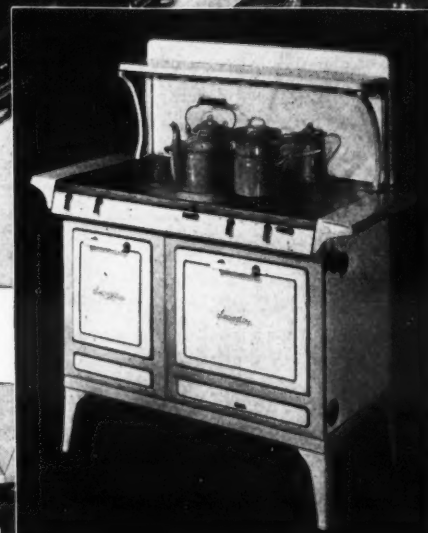
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Above: Battery of Vulcan Heavy Gas Ranges in the cafeteria kitchen of the Gorton High School, Yonkers, N. Y. At right: Smoothtop Gas Range.



Smoothtop Gas Ranges used in Domestic Science Classroom at Multnomah School, Portland, Oregon.

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Personal News of School Officials

♦ The honorary degree of doctor of literature has been conferred on Miss SUE M. POWERS, superintendent of schools of Shelby county, Tenn., by Southwestern College, of Memphis.

♦ Mr. WILLIAM H. KELLEY, president of the board of education of Newburgh, N. Y., has been reelected. Mr. Kelly has served the schools in varying capacities for seventy years. In 1860 he was made principal of the Washington School, where he served for many years. After leaving this position, he became a member of the board of education, and later was elected as president. In spite of his advanced age, Mr. Kelley is in good health and active in service.

♦ Mr. W. Z. CARR has been reelected to succeed himself as a member of the school board at Richmond, Ind. Mr. Carr who is president of the board, has been reelected for a new term of three years. He has completed three terms as a member of the board.

♦ Mr. ANDREW KLACZYNSKI, a member of the school board of West Harvey, Ill., since 1903, was recently honored by the members of the school board in recognition of his 27 years of service on the board. Mr. Klaczynski received a fountain pen as a token of appreciation for his long and faithful service.

♦ Mr. ARTHUR S. GIST, formerly principal of the training school of the State Teachers' College, San Francisco, Calif., has been elected president of the Numboldt Teachers' College at Arcata. Mr. Gist is a life member of the National Education Association, is active in the Department of Elementary-School Principals and has done consider-

able editorial work in connection with the year-books of the Department.

♦ Supt. J. A. CRANSTON for 24 years superintendent of schools at Santa Ana, Calif., will retire on July 1, 1931, after a quarter century of service in the school system. During his long period of service, Mr. Cranston has seen the school system grow from a few scattered grammar schools and a small high school, to a system of nearly a score of elementary schools, a polytechnic high school, and a junior college.

♦ Dr. G. D. ROBB, principal of the senior high school of Altoona, Pa., for the past 37 years, retired from the service with the close of the school year in June. Dr. Robb who was appointed principal in 1893, has seen the high school grow from 140 to 2,700 students, and the number of graduates from 16 to 614.

♦ Supt. F. R. HARRIS, of Greenfield, Ohio, has been reelected for a new term of three years, at a salary of \$4,700 for the first year, \$4,900 for the second year, and \$5,000 for the third year.

♦ Mr. B. R. DUDSWORTH has been elected principal of the McClain High School, Greenfield, Ohio for a term of three years.

♦ Pontiac, Mich. The office of business manager of the school board has been created with the appointment of Mr. WESLEY B. SIBLEY. Mr. Sibley is a graduate engineer of the University of Michigan and has considerable business experience.

♦ Mr. E. L. LEHR has been elected superintendent of schools at Rock Falls, Ill.

♦ Mr. A. B. MURRAY has been elected superintendent of schools at Plain City, Ohio.

♦ Supt. E. W. SCHWING, of Camden, Ohio, has been reelected for another year.

♦ Mr. B. JOHNSON has been elected superintendent of schools at Aberdeen, Ohio, to succeed J. H. Brooks.

♦ Supt. P. H. WEAVER, of Shiloh, Ohio, has been reelected for a new term of two years. Mr. Weaver has completed ten years of service in the Shiloh schools.

♦ Mr. N. P. BLATT has been elected superintendent of schools at Manchester, Ohio.

♦ Mr. H. E. KUNTZ, of Sharon Center, Ohio, has been elected superintendent of schools at Prospect.

♦ Mr. J. W. DARLINGTON, of Carroll, Ohio, has been elected superintendent of schools at Crooksville.

♦ A completely equipped playground has been presented to the boys and girls of Mt. Vernon, Ohio, by Mr. FRANK L. BEAM, former president of the city board of education. On the dedication day, a beautiful tablet was unveiled, naming the field the Frank L. Beam Playground.

♦ Mr. J. W. DARLING, of Carroll, Ohio, has been elected superintendent of schools at Crooksville, to succeed J. E. Stage.

♦ Mr. WALTER CARPENTER has been elected superintendent of schools at Galena, Ohio.

♦ Supt. E. E. HOLT, of Georgetown, Ohio, has been reelected for a three-year term.

♦ Supt. W. F. HOERNER, of New Madison, Ohio, has been reelected for a new term.

♦ Supt. T. R. PFISTERER, of Winslow, Ill., has been reelected for a seventh consecutive term.

♦ Mr. ROBERT HALL, of East Sparta, Ohio, has been elected superintendent of schools at Greentown. Mr. W. M. KOHR, of DUNDEE, has been elected to succeed Mr. Hall at East Sparta.

♦ Supt. C. G. PEMBERTON, of Sinking Spring, Ohio, has been reelected for another year.

♦ Mr. R. E. MIKESELL has been elected superintendent of schools at Grove City, Ohio.

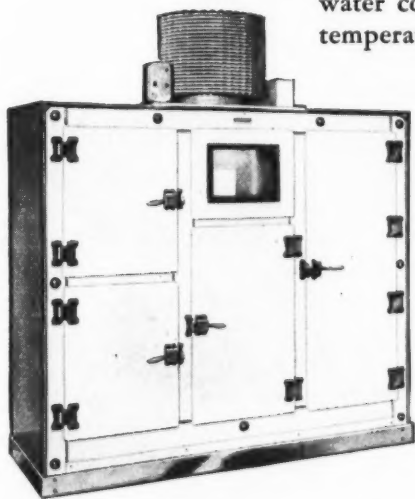
♦ Dr. ALBERT BARRETT MEREDITH, state commissioner of education for Connecticut, has resigned his position to become professor of educational administration at New York University. He filled the post of state commissioner for a period of ten years. He is succeeded by Dr. ERNEST W. BUTTERFIELD, state commissioner of New Hampshire. He was appointed by the Connecticut state board of education.

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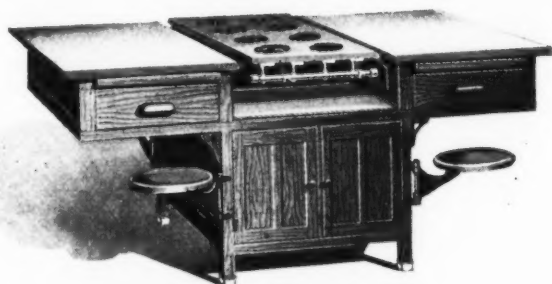


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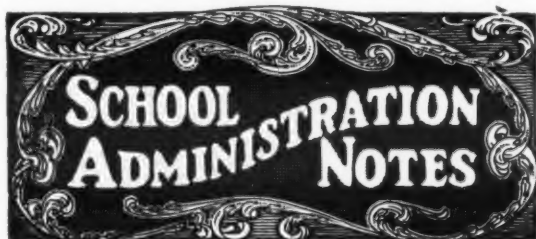
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Student's Biology Table No. 870



MORE GIRLS THAN BOYS FINISH HIGH SCHOOL

Figures recently compiled under the direction of Frank O. Holt, registrar of the University of Wisconsin, show that more girls than boys finish high school in Wisconsin. However, in psychological tests, slightly more boys achieved scores placing them in the upper 20 per cent of 16,000 seniors in the state last year. The percentage of boys whose scores placed them in the lowest 20 per cent was slightly greater than the percentage of girls.

The study also showed that girls were somewhat more heavily represented than the boys in the middle 60 per cent of the scores. Of the total number of seniors tested, 43 per cent were boys, and 57 per cent were girls.

More girls than boys from farm homes were in the senior classes, whereas more boys than girls from homes of retail dealers were in the total group. Children of professional men included equal numbers of boys and girls, and these students made the highest average scores among children of various occupational groups.

A SURVEY OF PROBATION STUDENTS

Pupils who have poor records in high school are likely to fail in the work of the higher institutions, although there are exceptions to the general rule, according to Mr. C. A. Smith, secretary of the faculty at the University of Wisconsin.

For the past nine years, Mr. Smith has followed the work of students who are admitted to the freshman class on probation. Out of 144 students who entered on probation last fall, 66 were enrolled in the second semester. Of those who

dropped out, 59 were dropped because of poor scholarship. Sixteen students withdrew before completing the semester, and one took the advice to withdraw.

Only 31 students made grades high enough to escape faculty action at the end of the semester, and 21 made as many grade points as credits. One of the students made twice as many grade points as credits, and four made more than one and one half grade points. The whole group made slightly more than one half a grade point per credit.

STATUS OF LIBRARIES IN NORTH CAROLINA

The number of books in the school libraries of North Carolina has more than doubled within the past five years, according to a recent statement of *State School Facts*, the official organ of the state education department. There are now a total of 1,153,326 volumes of available reading material in elementary and high-school libraries, where there were only 549,075 in 1923-24.

Although the number of volumes made accessible to the school children of the state has increased, the number of libraries has decreased. In 1903-04 there were 3,585 school libraries in both the rural and charter schools. In 1928-29, there were 2,532 libraries in those schools, a decrease caused by the consolidations effected during that period.

There were 2,137 rural libraries and 395 libraries in charter districts at the close of the school year. Currituck county, with its six school libraries for white children, lead the rural schools in the average number of volumes available per pupil enrolled. In the school libraries of this county there was an average of over five books per pupil.

FEDERAL BUREAU REPORTS INCREASING SURVIVAL RATE IN HIGH SCHOOLS

In every group of 1,000 children who enter the public schools in the lowest elementary grade, 855 eventually reach the seventh grade, 260 are graduated from high school, and 50 receive college degrees.

The U. S. Office of Education of the Department of the Interior, in a recent statistical study

on survival rates in the high schools, shows that there is an increasing survival compared with that of a decade ago, which is attributed to a more efficient school system and a more general appreciation of education.

Compared with survivals in 1928, the study indicates that survivals have increased during the 10-year period. In every group of 1,000 entering the lowest grade, 634 pupils reach the eighth grade, and 139 graduate from high school. Since 1908, it is stated, survivals to the fourth year in the high school have steadily increased. Of the total number entering the schools in 1908, 30.9 per cent survived to the fourth year in high school, 34.3 per cent in 1910, 40.3 per cent in 1915, 42.0 per cent in 1920, and 55.9 per cent in 1926.

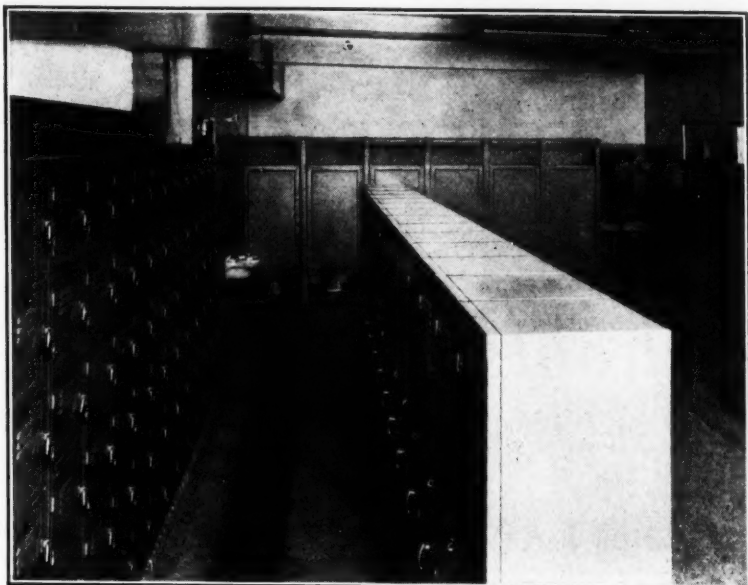
A number of factors may be pointed to as reasons for the increasing survival of students. One factor is the increased appreciation of an education. Greater survival is also due to the better preparation of the teacher and to a wider variety of courses offered in the schools. There is a better adaptation of the school to the needs of the children than formerly and another reason is the gradual increase in the compulsory school age which affects children in the lower grades and in the first two years of high school.

ADMINISTRATION NOTES

♦ New York, N. Y. The first definite step toward relieving the unemployment situation among newly licensed teachers and reducing the number of retarded pupils has been taken by the budget committee of the school board. Mr. A. S. Somers, chairman of the budget committee, has proposed that a certain number of young teachers be assigned to each school to assist children who are in need of special coaching. It is proposed that one such teacher be assigned to each 25 classes. Under the new plan, it is the purpose to find suitable work for a large number of young men and women well prepared for their jobs, and at the same time to reduce the enormous financial and spiritual loss involved in unnecessary retardation.

♦ The total of graduates for the city schools of Kansas City, Missouri, this year reaches approxi-

(Concluded on Page 120)



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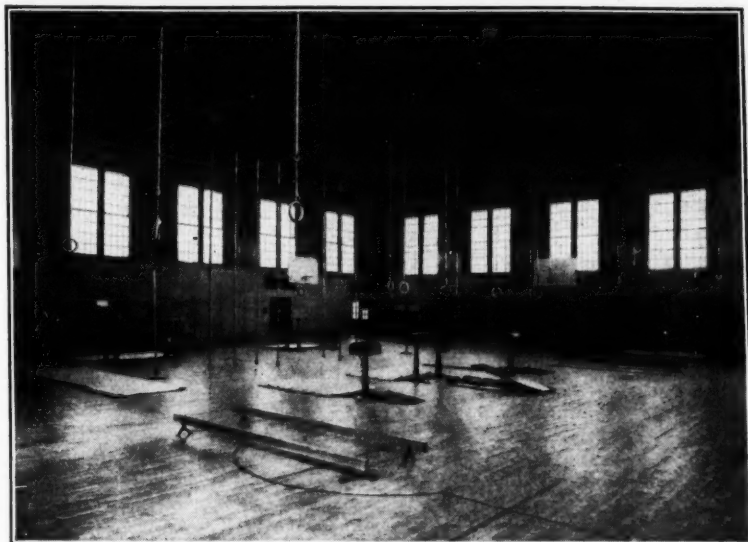
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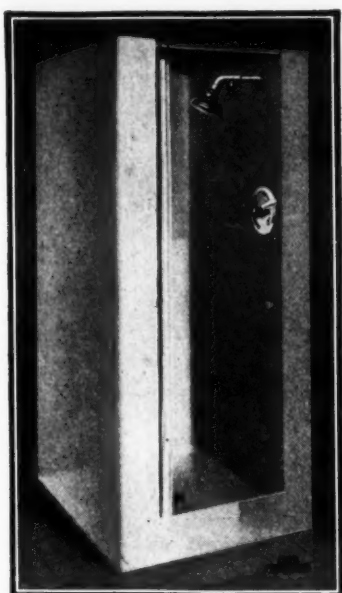
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A most practical method of keeping shower head thoroughly clean: and a most substantial design and construction for the purpose.



(Concluded from Page 118)

mately the 10,000 mark. Of the total, 2,451 were from the senior high schools, and 2,279 from the junior high schools. The junior college had 200 graduates.

♦ The high school at New Bremen, Ohio, has received a gift of \$5,000 from Mr. and Mrs. F. A. Ende. The income from the fund, amounting to \$235 annually is to be used for buying books, music, and musical equipment for the high school.

♦ The school board of Mt. Gilead, Ohio, has adopted a complete reorganization program for the elementary classes. Under the plan, the opportunity rooms will be discontinued and grades from the fifth and upward will be departmentalized. Under the plan, one teacher will be free during a certain part of each day to supervise writing and art in all the grades.

♦ Two thousand nine hundred and twelve high-school seniors, representing 81 counties in Ohio, participated in the first general scholarship contest for high-school seniors, which was held recently at Columbus. The state education department is stimulating sustained scholastic endeavor during the high-school years, in the selection of seniors of high standing and in putting these students in connection with the Ohio colleges and universities that the students desire to enter. The department is interested in providing scholarships for those deserving students who are eligible and who desire to enter the institutions.

♦ The Playground and Recreation Association of America, in a recent statement, shows that the number of towns and cities in the United States and Canada reporting play areas under leadership grew the past year to nearly a thousand, and more than 1,100 new play areas were opened within the year. A total of 890 cities reported 23,000 recreation leaders and a total expenditure of nearly \$33,540,000 for public recreation. During the year just passed, 14,000 persons were enrolled in training courses for recreation leadership.

♦ New Orleans, La. The school board has begun a study of teachers' salaries with a view of adopting a new salary schedule.

♦ Topeka, Kans. The school board has adopted a revised salary schedule based on the amount of

professional training. Under the schedule, teachers with two years of college training above the high school, will receive a minimum of \$1,250, with increases of \$60, up to a maximum of \$1,850. Teachers with three years of college training beyond the high school, will receive a minimum of \$1,350, and increases of \$60, up to a maximum of \$1,950. Teachers who are college graduates will begin at a minimum of \$1,450, and will receive increases of \$75, up to a maximum of \$2,150. Teachers with masters' degrees who have reached the maximum, will be paid increases of \$100 per year for two years.

♦ The College of the City of New York is offering a training course for teacher clerks in elementary schools and junior high schools in preparation for an examination to be given by the board of education. The course covers five days a week and covers fifteen lessons.

♦ Fort Lee, N. J. Upon the recommendation of Supt. A. E. Chase, the school board has raised the maximum for teachers in the second and third classes \$200 per year.

♦ Policies representing \$200,000 in group insurance have been given to 200 members of the kindergarten 6-B teachers' association of New York City. The association is the first teachers' organization in the city to work out successfully a plan of group insurance for its members. The 200 teachers came from fifteen city schools and were the first group to come under the plan worked out by the association, in cooperation with the Equitable Life Insurance Company. It is expected that at least \$1,000,000 worth of insurance will be written for the members of the organization. The policies are for \$1,000 each.

♦ Altoona, Pa. The school board has adopted a new form of continuing contract for teachers, which requires no annual renewal. More than \$20,000 has been added to the teachers' payroll for meeting the increases in salaries resulting from the increments granted to teachers and effective during the coming school term.

♦ The Wisconsin Department of Public Instruction has ruled that the electors of a school district have no authority under the law to appropriate any money raised by taxation for the purpose of buying a right of way to a schoolhouse. Neither

have they any right, according to the ruling, to appropriate funds received from the sale of school property for the purchase of a right of way to a school building. Under the law as it now stands, there is nothing to prohibit electors of a school district from selecting a site not abutting upon a public highway.

♦ In view of the general interest in a uniform marking system a survey was made this year of the symbols used in the secondary schools of the state of Washington. A total of 250 schools were included in the study, which was handled by a committee composed of Supt. C. Paine Shangle, of Sedro Woolley, Supt. D. E. Weidman of Bellingham, and Principal F. G. Murdock of Everett.

The recommendations of the committee which have been presented to the department of education for final approval are:

1. Adoption of a 5-point marking system.
2. A letter system, which will interpret in terms indicative of the character of the work done.
3. Use an accepted normal curve of distribution as a basis for comparison. The use of a normal curve aids the teacher in evaluating her own marks.
4. The term, "failure" should not be used in designating the quality of a pupil's work.
5. A pupil who receives an "X" grade should be required to reënroll in the same work, or be advised to drop the subject.
6. The following letter system is recommended:
A—meaning excellent work, or among the best.
B—meaning good work, but a little below the best.
C—meaning satisfactory work.
D—meaning poor work, or only partially satisfactory.

X—meaning unsatisfactory work, for which no credit will be given. A pupil receiving an "X" grade should repeat the subject, or change to another type of work.

♦ Marion, Ohio. The school board has effected a reduction of \$20,000 in operating expenses through a shortening of the school term, the elimination of six teaching positions, and a reduction in the salaries of the teaching staff. The board has adopted a salary schedule $12\frac{1}{2}$ per cent below that of the former schedule.

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North Toronto Technical High School
Toronto, Ont.

Board of Education
East St. Louis, Ill.

Decorah Public Schools
C. C. Gamertfeder, Supt.
Decorah, Iowa

Board of Education
Emporia, Kans.

Public Schools of Mount Clemens
Mr. L. W. Fast, Supt.
Mount Clemens, Mich.

Independent School District No. 2
Bovey, Minn.

Independent School District No. 2
Calumet, Minn.

Independent School District No. 2
Coleraine, Minn.

Independent School District No. 2
Marble, Minn.

Independent School District No. 2
Taconite, Minn.

Independent School District No. 5
Mr. C. H. Christinson
White Bear, Minn.

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Board of Education of the City of N. Y.
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Phoenix High School
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Phoenix, N. Y.

Waterville High School (New)
E. G. Randal, Pres.
Waterville, N. Y.

Gordon High School
Yonkers, N. Y.

Board of Education
Memphis City Schools
Memphis, Tenn.

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Northwestern University
Edw. B. Davidson
Chicago, Ill.

Rosary College
River Forest, Ill.

Michigan State College
East Lansing, Mich.

Normal College
Kearney, Nebr.

Dartmouth College
Dept. of Buildings and Grounds
Hanover, N. H.

Potsdam Normal School
R. T. Congdon, Prin.
Potsdam, N. Y.

Oklahoma A. & M. College
E. E. Brewer, P. A.
Stillwater, Okla.

State Normal School
Bellingham, Wash.

University of Washington
New Aeronautics Bldg.
Seattle, Wash.

McGill University
Montreal, Canada

Western University
London, Ontario

University of Utah
Salt Lake City

University of Oregon
Portland, Ore.

University of Redlands
Redlands, Calif.

Colorado Agricultural College
Ft. Collins, Colo.

East High School
Buffalo, N. Y.

Salisbury High School
Salisbury, N. Car.

Clarkston Public Schools
Clarkston, Wash.

Vallejo High School
Vallejo, Calif.

E. Grand Rapids High
E. Grand Rapids, Mich.

Minneapolis Public Schools
Minneapolis, Minn.

State College of Pullman
Seattle, Wash.

State Teachers College
Greeley, Colo.

Weyburn School Board
Weyburn, Sask.

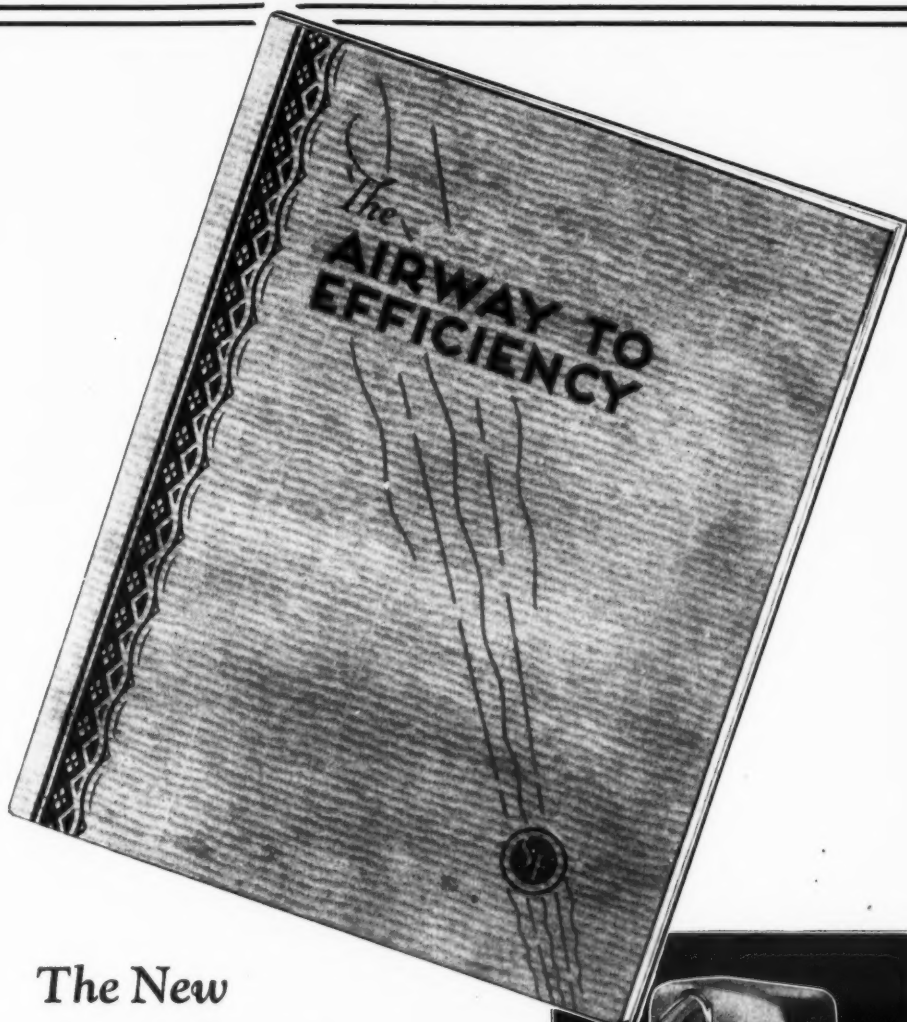
Westervelt School
London, Ont.

Nova Scotia Tech. School
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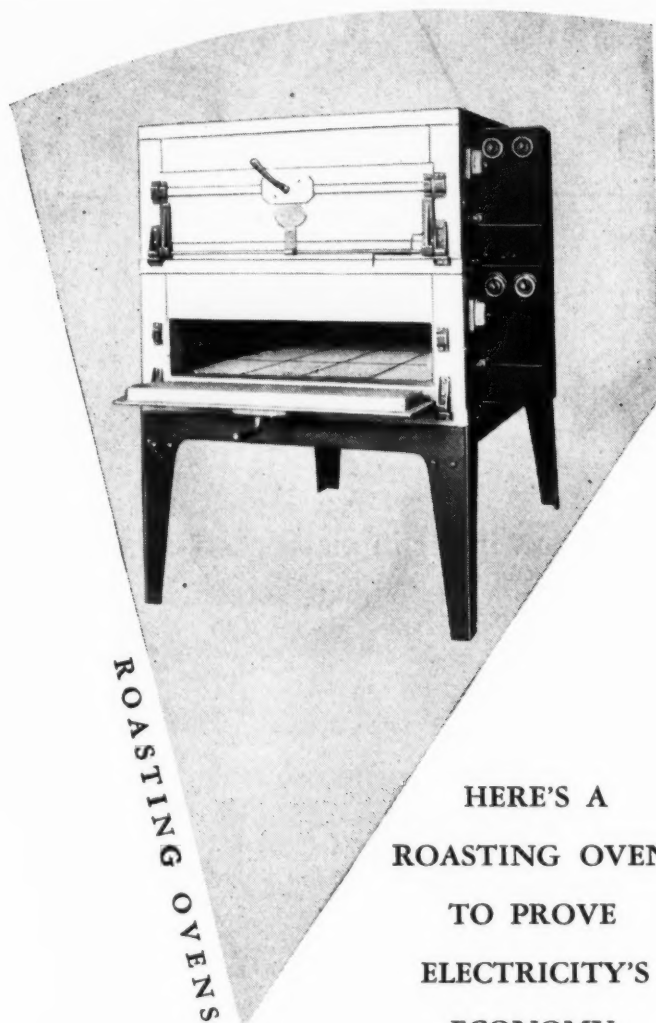
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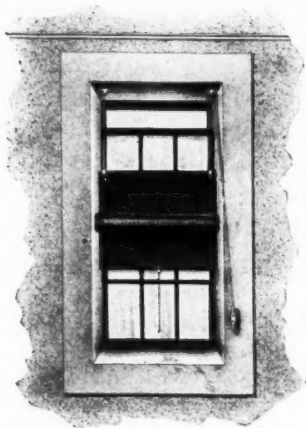
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SUPERINTENDENT FRANK BOYNTON KILLED

Dr. Frank D. Boynton, nationally known educator and superintendent of the Ithaca, N. Y., schools for thirty years, was killed on June 17 in an accident near Bay Shore, L. I., N. Y. His automobile was struck by another en route to Central Islip, L. I., where he was to have been the principal speaker at the dedication of a new high school.

Dr. Boynton was 67 years old and was born in Potsdam, N. Y. He had been superintendent of schools in Ithaca since 1900. In 1927 he was second vice president of the Department of Superintendence of the National Education Association and in 1928 he was elected to the presidency by acclamation.

Other positions he has held are: superintendent of churches in Ithaca; principal of the Union School and Academy at Webster, N. Y.; principal of the Ithaca High School and chairman of the committee from Associated Academic Principals of New York State, having had charge of the 1900 and 1905 editions of the New York Regents' Syllabus.

He was appointed by the chancellor of New York University to arrange a course of study for high schools in New York State. Since 1907 he has been a member of the New York State Examination Board.

Dr. Boynton was widely known as a vigorous speaker and writer on educational topics. He was an ardent champion of school efficiency and a fearless opponent of unwise criticisms of schools and schoolmen. He has been generally acclaimed as the outstanding example of a small town educator, who has widely influenced school administrative practice.

RULES FOR SUMMER PLAYGROUNDS

Because of the danger from motor-vehicle traffic, the New York City board of education regularly opens its playgrounds for the use of the children after school hours. Playgrounds connected with the schools designated have been made available to the school on Saturdays, holidays, and during the vacation period. During the vacation period the grounds are open for use from 10 a.m. to 6

p.m. Playgrounds under the supervision of the director of extension activities are open under supervision from 1:30 to 5:30 p.m.

Principals have been asked to help toward the observance of the following regulations:

1. Children over 14 years of age are not permitted to use the playgrounds.
2. Only outdoor playgrounds, accessible from the street, are to be used. The use of indoor playgrounds, or of playgrounds which can be reached only through the building, is not permitted. The use of the school toilets is not allowed.
3. Boys and girls are not permitted, except in the case of specially designated schools, to use the same playgrounds.
4. In schools having athletic centers the program will be carried on until 5 p.m. The playgrounds, however, are to be open until 6 p.m. Principals in schools having afternoon athletic

centers are requested to assist in carrying out the plan of the division of health education in the development of these after-school athletic centers.

5. District superintendents are requested to make occasional visits to the school playgrounds in their districts and to report to Assoc. Supt. Joseph M. Sheehan, in charge of playgrounds, the conditions observed.

6. Principals are requested to keep in touch with the police station in the vicinity and with the patrolmen who aid in supervising the playgrounds; and to encourage and develop such auxiliary supervisory support as the school and the neighborhood may provide.

7. Each school should develop a code of ethics especially applicable to playgrounds. Principals should inaugurate a follow-up system by which the incidents of the previous day may be gone over with the pupils for the purpose of commending good conduct and of remedying defects. The patrolmen of the section should be furnished with a list of suggestions.

8. The encouraging of pupils to play in the playgrounds rather than in the streets should also include reference to any accessible playground under the supervision of the department of parks.

The superintendent of plant operation must issue appropriate instructions to school custodians.

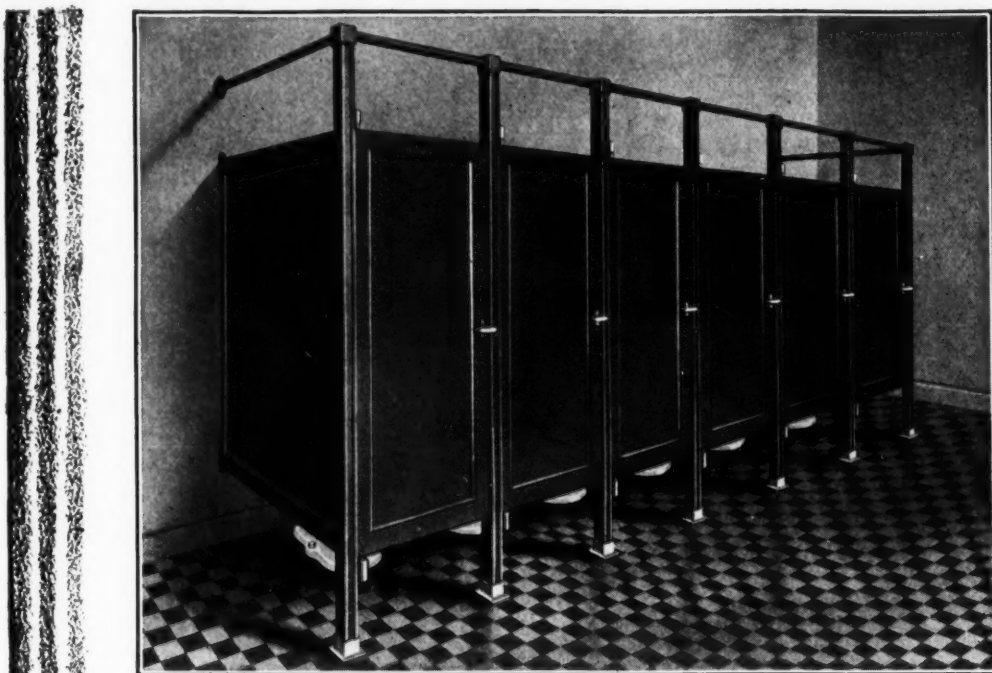
♦ MR. E. K. BARDEN has just completed a five-years term as superintendent of schools at Humble, Texas. He has resigned to enter the University of Texas at Austin, for a post-graduate course in school administration. Under Mr. Barden's direction, the Humble School system has been entirely reorganized. Its financial structure has been put on a sound basis, and an improved school plant provided.

♦ MR. B. L. REEVES has resigned as principal of the Williamsville Township High School. After seven years of service he has been elected principal at Virden, Illinois.

♦ MR. RALPH BURNIGHT has been elected superintendent of the union high school at Excelsion, Calif. Mr. Burnight is a graduate of the University of Southern California and holds two degrees given by that institution.



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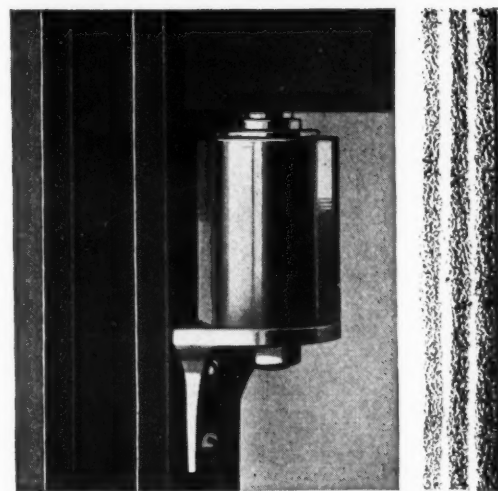
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NEW YORK ASSOCIATED SCHOOL BOARDS TO MEET

The next annual meeting of the Associated School Boards and Trustees of New York state will be held on Monday and Tuesday, October 13 and 14, at Syracuse, N. Y.

In connection with the convention, there will be an exhibit of school-building materials and equipment. Information concerning the meeting, or the exhibits, may be obtained from Mr. H. J. Clark, vice-president of the board of education, Syracuse, N. Y.

BOARDS OF EDUCATION

♦ Columbus, Ohio. The board of education has awarded a contract for 16,000 tons of coal for the next year, at a cost of \$3.29 per ton.

♦ The court of common pleas of Lawrence County, Ohio, has recently given an opinion in which it holds Mr. E. L. Singer entitled to his seat on the Chesapeake-Union rural school board. The school board had held that Mr. Singer was disqualified for his office because of removal from the school district, and Singer sought action to retain his seat as a member. The evidence brought out that Mr. Singer had not actually removed or changed his residence, and that he had taken the oath of office within the legal limit. An alternative writ of mandamus was made perpetual by the court.

♦ Cincinnati, Ohio. The assistant city solicitor, Mr. John J. O'Donnell, in a recent opinion, has held that the local board of education is not authorized to pay the premium on a surety bond given by a bus driver employed by a contractor who furnishes transportation for pupils. It was also held that the bond should be ample to protect the passengers in the event of injuries resulting from the negligence and carelessness of an operator of a school bus.

In his opinion, Mr. O'Donnell pointed out that a bond in the sum of \$160 is not sufficient to cover any liability which may accrue by reason of the driver's wrongful acts and negligence, nor is the bond so worded that it may be inferred that the same was intended to cover such acts. Since the

board itself is not liable either to a pupil or any other person for personal injuries or property damage caused by the negligence of the driver of a school or motor bus, it is obvious that the purpose of the law was to provide ample protection in the event of injury or property damage. The board in fixing the amount of the bond should bear this in mind and its specifications set forth the amount of the bond required.

♦ Pupils of Marion county, Ind., outside of Indianapolis, will be saved \$12,000 in schoolbooks next year, by purchasing them at the school buildings. Under a new arrangement of the county board of education, high-school and elementary-school textbooks will be sold to pupils without profit. It is believed that each pupil will be able to purchase books for \$4, as compared with \$5 in former years.

♦ Nocona, Tex. The school board has made a ruling eliminating dancing from school programs.

♦ Marengo, Iowa. The school board has adopted the policy of caps and gowns for the graduating classes of the high school.

♦ Lafayette, La. The school board has proposed a reduction of 5 per cent in teachers' salaries in the event the necessary funds are not received from the state.

♦ Fort Lee, N. J. The school board has adopted rules to govern the discipline in the high school. Under the rules, every pupil who absents himself from classes will be given three chances. He will first be warned, then his parents will be notified, and on the third infraction, he will be dismissed from the school. The action was the result of bad disciplinary conditions and a glaring disregard of authority by certain students.

♦ Woonsocket, R. I. The school board has taken the initial step toward the remodeling of one of the schools for use as a school administration building. The city council will be asked to appropriate \$7,500 for financing the building project.

♦ Helena, Mont. A modern school accounting system has been introduced in the business department of the city schools. The new system which was initiated on July 1, provides for a double-entry accounting system, with provisions

for the distribution of school expenditures by buildings and departments. Work has started on a complete appraisal of the school buildings, grounds, and equipment of the school system.

A complete system of uniform claims, stores ledger, and work orders has been worked out for the more efficient operation of the business department. A requisition system for the distribution of supplies has been adopted, which makes it possible for supplies to be delivered promptly.

♦ Tucumcari, N. Mex. The contracts have been let for the erection of a high school. The building will be erected from plans prepared by Architects Lightfoot and Funk.

SCHOOL BUSINESS OFFICIALS' CONVENTION

(Concluded from Page 67)

outstanding members of the organization. The following were chosen:

President, Charles Lee Barr, assistant supply commissioner, St. Louis, Mo.

First vice-president, W. N. Decker, secretary of the school board, Altoona, Pa.

Second vice-president, Joseph W. Miller, secretary of the board of education of New York City.

Third vice-president, William E. Record, business manager of the board of education, Los Angeles, Calif.

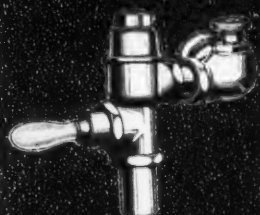
Secretary, John S. Mount, Trenton, N. J., re-elected.

Member of the executive committee, C. E. C. Dyson, Esq., Toronto, Ontario (ex officio).

The New Orleans reception committee, which was headed by Mr. A. J. Tete, as chairman, provided a typically warm-hearted southern entertainment. The sight-seeing trip was made through the city on Wednesday afternoon and the harbor was visited under the guidance of Mr. E. Jewel Michelle, on Thursday afternoon. At the banquet, which was attended by the New Orleans school board and its executives as guests of honor, Rabbi Louis Binstock and Hon. James J. Foster were speakers. Twenty firms representing widely used school goods were exhibitors at the convention.

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Endorsed by the sanitary authorities of every city which has had the opportunity to investigate this new safeguard —

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School-Board Business Administration

Article VI—Part 2

George F. Womrath, Minneapolis, Minnesota

4. What kind of brick should be used on the outside of the building?

In addition to making a comparison of the appearance and prices of brick which are to be used on the outside of the building, special consideration should be given to their size, durability, and weather-resistive qualities.

Learn the cost per thousand of various kinds of brick, such as (a) vitrified rough-texture face brick, (b) sand-lime brick, (c) common clay brick, (d) tile brick.

Give special consideration to brick that is manufactured locally.

Avoid sand-lime brick for exterior use.

Do not overlook the size of the brick. The standard size of face brick is 8 by 2 $\frac{1}{4}$ by 3 $\frac{3}{4}$ in. Bricks vary in size considerably and an unwise choice may involve many thousands of additional brick and a much greater labor cost to lay them, thereby increasing the gross cost of the brick used far beyond what a larger-size brick at a higher original cost per thousand would be.

Soft, underburned brick with poor wearing qualities, laminated brick, and glazed brick with surfaces that may be easily chipped, should not be used if subsequent maintenance expense is to be avoided. In addition to natural wear and tear the defacement of these bricks by school children should be considered.

All bidding brick manufacturers should be required to furnish sample panels of their brick

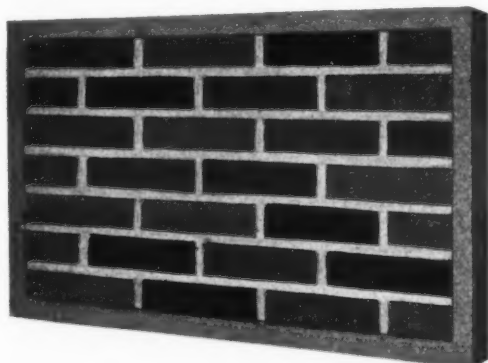


PLATE 1. SAMPLE PANEL OF BRICK

(Plate 1). The panels should be not less than 2 by 3 ft. and laid up in the color of mortar and kind of joints recommended by the architect. The joints most generally used are the flush or common joint, the struck joints, and the raked joint. As the brick when laid up with mortar of different colors reveal startling differences in the appearance of the brick, several sample panels should be submitted in order that an intelligent selection may be made.

5. To what extent can a reduction be made in the amount of cut stone used on the exterior of a school building, at the entrances, and on water tables, sill courses, copings, and elsewhere?

The cost of cut stone used as ornamentation on a school building should not exceed 5 per cent of the cost of the building.

Quite recently a high-school building in a middle-west city overran the appropriation by \$40,000. When a search was made for places to economize, it was found that a reduction of \$50,000 could be made in the cut stone and still leave \$20,000 of cut-stone work in the building. This revision in the cut-stone specifications alone left the bid \$10,000 under the appropriation. Other economies resulted in a still



HAMILTON SCHOOL, EVERETT, MASSACHUSETTS
PLATE 2. A GRADE SCHOOL WITH MODEST CUT-STONE TRIM

greater saving. These places where economies can be made should be found before the bids are called for.

It is not necessary to be extravagant with cut stone in order to produce a fine appearing exterior for the building (Plates 2 and 3).

6. Does the omission of marble embellishments and elaborate ornamentation both outside and inside the building preclude the adoption of a simple yet highly architectural design?

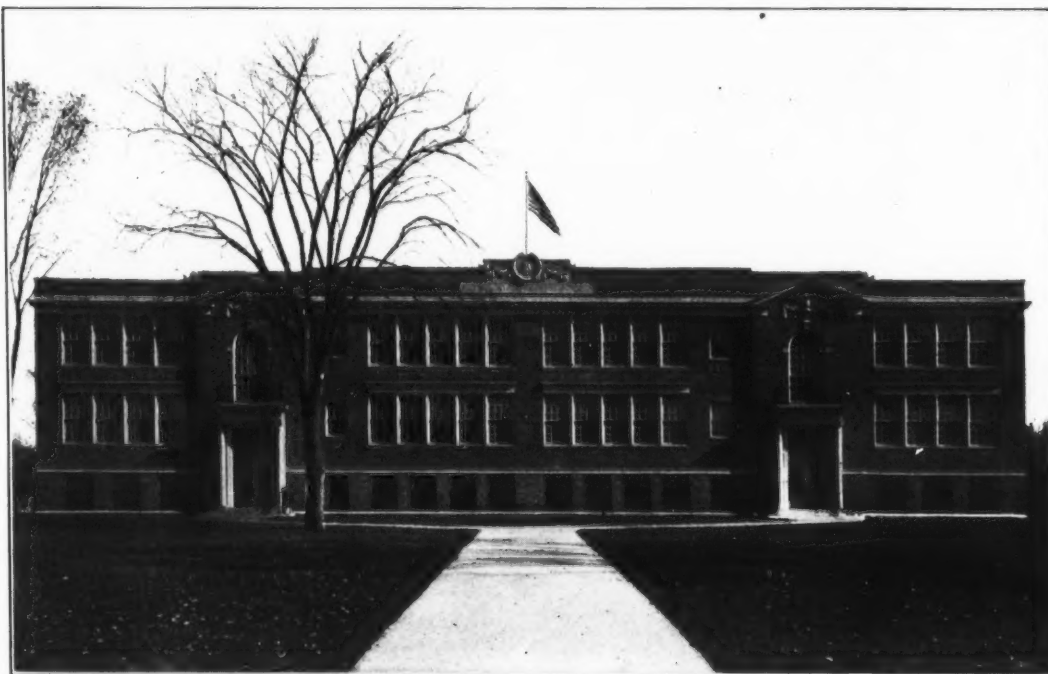
Costly and elaborate embellishments and ornamentation may be looked upon with approval in communities which can well afford to pay for elaborate buildings, provided they are at the same time monumental and dignified. This is especially true in communities where only one or two school buildings will ever be built and where these school buildings are the civic centers of the communities.

Elaborate entrances with ornamental porches which are beautiful to look at by day, only too often become a handy loafing place for night prowlers.

7. Can costly stone columns at entrances and all elaborate turrets and towers be omitted? (Plate 4).

Elaborate exterior ornamentation and embellishment should not be censured if the community builds only one or two schoolhouses which are also the civic show places. In large and small cities with many school buildings, extravagance in exterior ornamentation is a needless expenditure of public funds. These cities can elaborate on other types of civic buildings, such as a court house, an art institute, a public library, or any individual building of which there is need for only one in the city.

(Continued on Page 128)

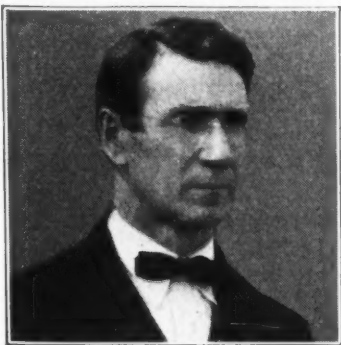


LACONIA HIGH SCHOOL, LACONIA, NEW HAMPSHIRE
PLATE 3. A HIGH SCHOOL WITH MODEST CUT-STONE TRIM



He Chases Grim Shadows From Thirsty Lips with This New Fountain

In this fountain, the Clow Soldier of Sanitation has created an artificial, refreshing spring that is as safe and fool-proof as human ingenuity can make it. Every drinker is carefully guarded from possible contamination of lips that drank before.



The Clow Soldier of Sanitation is working for you in the Clow Plant as well as in the field. New designs, refinements, careful testing are his contributions. In the picture you see Karl Wernle, Sanitary Engineer of the plumbing division, Chicago.

The owner is protected against the mischievousness and irresponsibility which every public plumbing feature must meet.

The angle stream has its source beneath a protecting hood under which lips cannot get. That source is well above the top level of the waste bowl. Should the waste become clogged, willfully or accidentally, the waste water can never reach the drinking stream spout, to carry contamination to a drinker's lips.

The stream cannot be squirted by mischievous children. Place a finger over the

opening, and the water merely runs down into the bowl and into the waste, because of exclusive Clow double opening design.

Thus the Clow Soldier of Sanitation gives you a new drinking fountain, which more than meets every health specification or recommendation.

What he has done here is typical of his work to defeat high costs and the grim ghosts of insanitation.

The fountain pictured is available in either pedestal or wall-hung types.

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PREFERRED FOR EXACTING PLUMBING SINCE 1878

Consult your architect

A DOUGHERTY CAFETERIA PROVIDES HYGIENIC COMFORT



NEWARK ACADEMY
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Architects

AND provides it quickly, conveniently and economically. Quickly because a cafeteria by Dougherty is especially designed to handle rush lunch periods, through speedy preparation and service.

Conveniently because of the planning and thought that goes into every detail of a cafeteria installation by this house. The keynote of the Dougherty Cafeteria is convenience.

Economically because of the savings effected through modern manufacturing methods. Methods that give advantages to the school in the form of lowered initial cost, lowered operating cost and lowered maintenance cost. Let us aid you in planning a cafeteria for your school.

W.F. DOUGHERTY & SONS, INC.
Everything For The Kitchen
1009 ARCH STREET PHILADELPHIA, PA.

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No. 135

We carry a very complete line of Art Drawing Tables and Boards. Model No. 135, pictured above, is one of the most popular drawing tables we make. It is a convenient, sturdy table that will stand the hardest kind of school wear indefinitely. The whole top is adjustable, enabling the student to move his entire equipment to whatever angle he finds easiest to work at. A large, roomy drawer is also provided in which all drawing materials and equipment can be kept.

Write for our illustrated catalog showing complete line of school, library and office furniture.

John E. Sjöström Company, Philadelphia, Pa.
Established 1893

(Continued from Page 126)

8. Should expensive, highly ornamental parapets and copings be omitted?

There are certain kinds of parapets which should be omitted, regardless of their artistic beauty, simply because they are costly to maintain, especially in cold climates where frost and freezing occur and cause much damage.

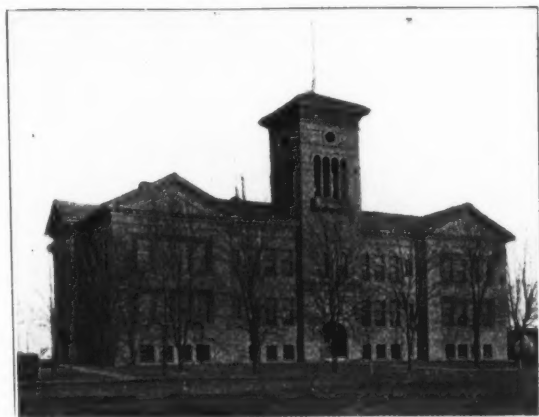


FIG. 4. A WELL DESIGNED BUT USELESS TOWER

Parapets which are irregular in shape, highly ornamented, or which have portholes and other openings in them are especially subject to rapid deterioration.

A recent study of parapets¹ revealed the principal causes for trouble to be fancy designs, porous brick, defective joints, inferior workmanship and materials. Parapets of plain, simple design, and built of high-quality material throughout, and covered with a substantial coping with waterproof joints, and protected on the roof side with well-constructed flashing, are to be given preference over highly ornamented

parapets built for looks rather than wear.

9. Compare utility and cost of cut stone, salt-glazed tile, and galvanized iron for parapet and chimney copings, and decide which shall be used.

Cost, utility, and durability of materials for covering parapets should be carefully compared. The principal consideration is to obtain a covering which will not disintegrate under the action of either time or the elements. The method of applying the covering is of vital importance. A material of strength and durability, if applied so that the joints and meeting strips are left exposed so the weather can penetrate them, is soon forced out of position and rain water is then readily admitted. When this happens, the materials in the coping and parapet are loosened and are likely to fall, thus becoming a dangerous hazard; the wall beneath the coping disintegrates and rain water leaks into the building, causing ruin of plaster, woodwork, and paint.

Some approximate costs are:

	Per lin. ft.	Laid
Stone coping	\$1.63	\$2.50
Galvanized-iron coping48	.90
Salt-glazed-tile coping45	.60

It is a costly operation to repair roof parapets and chimney tops. It is important, therefore, that careful consideration be given the material used to protect them, and its application.

Copings of tin and galvanized iron should be avoided because neither are sightly nor durable.

Bronze copings are not sufficiently serviceable to warrant the extra high cost.

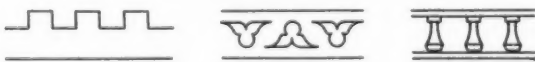


FIG. 5. TYPICAL PARAPET FORMS WHICH ARE EXPENSIVE AND SHORT-LIVED

Plain stone copings on all exposed parapets and copings of glazed-salt tile of a selected quality on all concealed parapets, if the joints are made properly, will endure as long as the building itself and are moderate in cost and easily repaired.

Jointless caps made of heavy metal and fitted over the brickwork at the top of chimneys are recommended as the best protection possible to provide.

Extra care should be taken to calk all joints between coping stones with lead. Cement-and-mortar joints disintegrate rapidly and require constant attention to avoid costly repairs and leakage of water into the building.

(To be Continued)

♦ MR. HORACE F. BATES has been elected as a full-time superintendent at Somerset, Mass. The appointment is coincident with the dissolution of the Somerset-Swansea school superintendency union which the board felt was necessary because of the rapid growth of the school system. During the eight-year period covered by Mr. Bates's service, the school plant has been enlarged by three buildings, with the result that 1,100 children are being cared for in the schools of the town.

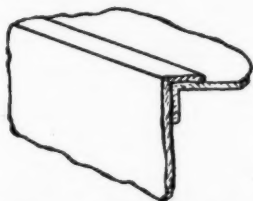
♦ SUPT. A. W. ELLIOTT, of Mt. Vernon, Ohio, has been unanimously reelected for a new term of five years, with a substantial increase in salary. Superintendent Elliott will lecture on school administration and classroom management at the summer school of the Kent State Normal College.

♦ DR. TRUMAN L. KELLEY, professor of education and psychology at Stanford University since 1926, has been appointed professor of education in the graduate school of education at Harvard University, Cambridge, Mass.

Dr. Kelley is widely known as a leader in the field of statistical and experimental study in education. He taught successively at the Georgia Institute of Technology, the University of Illinois, the University of Texas, Teachers College, Columbia University, and Stanford University. He has served as psychologist on the commission of social studies for the American Historical Association.

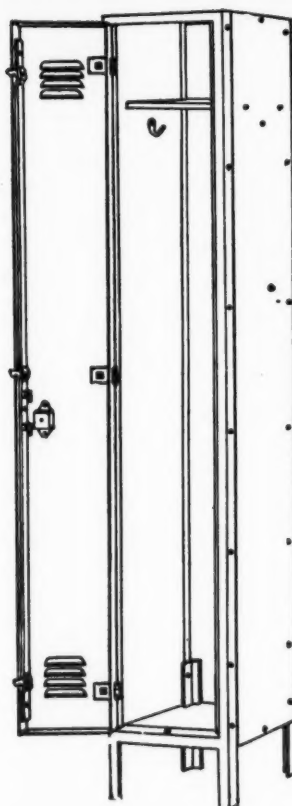
¹Parapet Walls, A Study by I. F. Stern, Consulting Engineer, Chicago, Ill.

NORWEST STEEL LOCKERS



STEEL CONSTRUCTION
with flanged joints, assuring double thickness of steel for bolting—with consequent increase in strength and rigidity.

DOORS EXTRA STRONG,
made of 16 gauge steel but with sufficient flexibility to spring back to shape in case they are accidentally bent out of alignment.



DOOR STOP — One piece door stop, (recessed to receive the locking fingers of the locking bar, and extending to full length of the frame) eliminates danger of clothing being caught or injured. This, with the extremely simple locking device, provides the utmost strength and minimizes danger of pilfering.

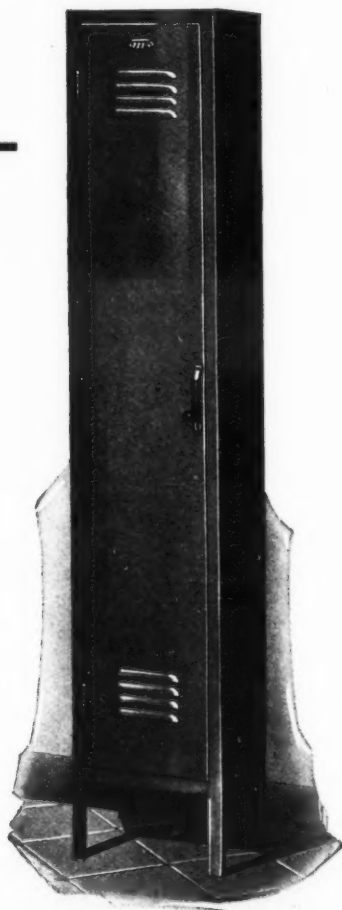
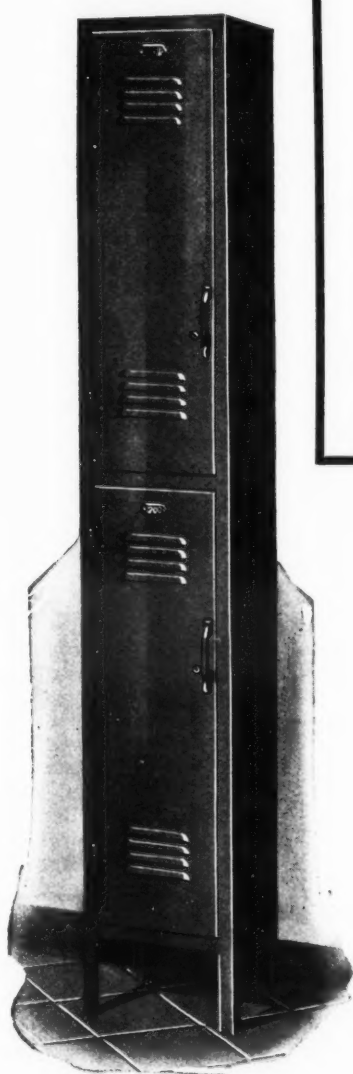


These Practical Features Save Taxpayers' Money

Norwest Steel Lockers are built to withstand the rough usage that lockers so often receive from thoughtless school children, hurrying to and from classes. Whether the door is closed gently or "banged shut," the locking device operates automatically, quietly, and positively.

Among other distinctive features of Norwest Lockers are — (1) *Cadmium-plating* of both nuts and coat hooks for maximum resistance against rust; (2) coat hooks fastened with *two* bolts instead of one; (3) *double-thick baked-on enamel finish* which enhances the attractiveness of the Lockers and contributes further to their high reputation for long, satisfactory service.

Consult Our Experienced Storage Engineers. They will gladly submit prices, and without obligation, assist you in selecting the types and sizes of lockers best suited to your requirements. If desired, they will submit lay-outs, enabling you to obtain maximum storage capacity in limited space.



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TODAY**

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complete line of
**NORWEST Steel
Lockers and Shelving.**

**Norwest
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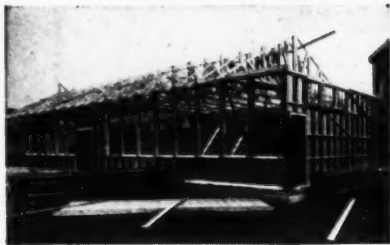
NORTHWESTERN STEEL PRODUCTS CO.

MAKERS OF STEEL LOCKERS, STEEL SHELVING, STORAGE CABINETS, ETC.

4545 W. Homer Street, CHICAGO.

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Safe — Modern — Economical



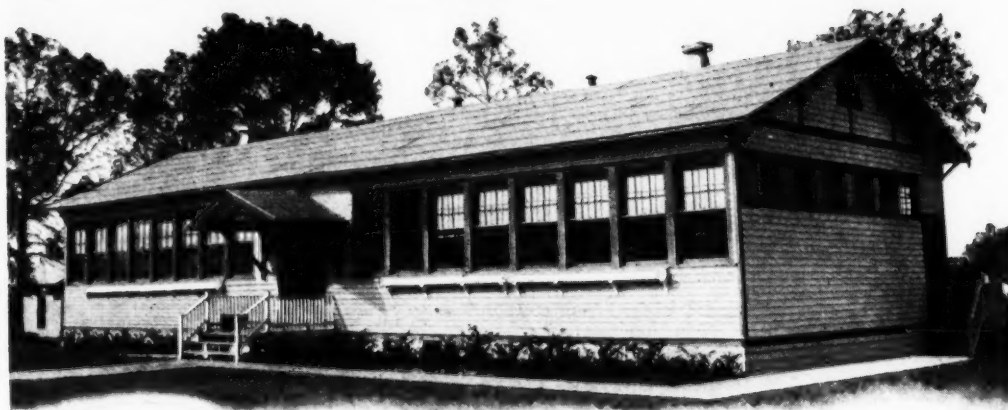
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Designed and manufactured by America's largest producers of sectional buildings, an organization foremost in the Building and building material industry for over 35 years. Embracing all the requirements of a modern building—correct light, perfect ventilation, sanitation, and safe construction are all an integral part of every Harris School, yet they are low in cost. Our Standard Designs accommodate 40 to 400 pupils and offer the most satisfactory solution of your housing problem in the most economical way.

PLAN NOW for the FALL TERM

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Simply let us know the number of pupils you have to accommodate and we will send you plans and prices of a building that will suit your requirements. You'll also receive our new School Building Catalog, illustrating the many types of schools we manufacture, together with complete specifications.

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DETROIT

WASHINGTON CORRESPONDENCE

A. C. Monahan, Formerly U. S. Bureau of Education School-Board "Gag" Rule

The so-called "gag" rule of the board of education of the District of Columbia is one of the rules of the board laid down for all teachers and other employees of the board, intended to keep them from lobbying in the interests of the public schools, or in their interests as teachers with congressional committees which have district school affairs to consider. The rule does not directly prohibit such lobbying, but it states that the board "looks with disfavor" upon efforts in the interest of congressional action by any of its employees. It would not prevent appearance before such congressional committees upon the request of the committee, although even in such cases, teachers have the feeling that they are expected to obtain the permission of the board.

Five of the teaching staff, including a principal of a junior high school and the supervisor of kindergartens, appeared before the House Committee on Education in the interest of the restoration of 78 kindergarten teaching positions eliminated by congress in the appropriation bill. When the board demanded an explanation from these five teachers for going before the committee, the interest was awakened and increased.

At the first meeting of the board after the appearance of the teachers at the congressional hearing, Supt. Frank W. Ballou was instructed to investigate the matter. He did so by requesting a written statement from each of the five, which he reported to the board at its meeting. Some of the five had been invited to appear by the committee and the others had been appointed by teaching groups. They were exonerated by the board, and the rule itself referred to a subcommittee on "rules" for consideration.

Whether the board in exonerating the five members of the teaching staff did it for expediency, or because they found that the rule had not been

actually violated, cannot be stated. Certain it is that much discussion of the situation before the board acted was strongly against any punishment being given the five. Newspaper editorials advised the board to take no action against the teachers, and Congressman Reed, chairman of the committee, was openly quoted by the press as threatening to summon the entire board before the committee if any punitive measures were taken. The most emphatic action against the board was that of the District Public-School Association, which represents parent-teacher associations and other citizens' associations in matters relating to education. This group adopted resolutions to the effect that the best interests of the schools "required freedom on the part of teachers" to present their opinions to the school board, or to Congress on any school questions, without interference nor punishment from their superior officials for so doing. It endorsed a bill before Congress known as the Blain-Bowman Bill, which would prohibit the board of education from passing rules denying the right of teachers to discuss school matters in conference, or to petition Congress on their own behalf.

Appropriations for U. S. Office of Education, 1930-31

The Office of Education will have for the year beginning July 1 a total of approximately \$411,000 more than it has had in any one year in the past. For salaries in Washington, \$253,880 are appropriated, an increase of \$22,920 over the year just ended. For traveling and other expenses of the bureau staff, \$30,000 is available, or an increase of \$19,000. Printing and similar routine work which is paid for from an appropriation to the Department of the Interior is not included in the above. For the maintenance of the schools for natives in Alaska, included in the above, \$752,690 is appropriated, an increase of \$172,290. For the Health work of the bureau in Alaska, the amount provided is \$268,761 which amount is \$96,981 greater than for the year 1929-30.

The appropriation bill as passed carried an allotment of \$100,000 to continue the secondary-school survey begun during the past year under an author-

ization of Congress, at a cost not to exceed a total of \$225,000. For the past year \$50,000 of this amount was available.

A new undertaking to be started during the year has been authorized by Congress, with \$50,000 appropriated for the first year's work. This is a study of the whole field of teacher-training work in the United States, in state and city teachers' colleges and normal schools, and in all other teacher-training schools of all kinds, both public and private. Dr. William John Cooper, U. S. Commissioner of Education, is selecting the men and women to serve on a national advisory committee under whose general directions the study will be made. A total of \$200,000 has been authorized by Congress for the work and the study will extend over a three-year period.

Radio for Isolated Homes

The U. S. Office of Education is distributing 100 radios to isolated homes in various parts of the country as part of an experiment in education by radio. The homes, all far from railroads, are located where the occupants have little contact with the outside world. The radios, all battery sets, were supplied the Office by one of the large manufacturers of radios.

The entire plan is being carried out with the cooperation of state departments of education or state colleges. The sets are being installed by local persons competent to do this work, and also to inspect them from time to time and report on the reaction of the families where they are placed. It is an experiment to determine the possibilities of education and the development of isolated people through the radio.

School-Boy Patrol Awards

Forty-seven boys in the Washington school-boy patrols have received special medals from the American Automobile Association for saving lives during the school year. "Awards of Merit" were given to 112 others for outstanding acts during the year in protecting children. Patrol boys from all the schools were presented with certificates of service, the total number of which reached approximately 1200.

(Concluded on Page 133)

A COMPLETE LINE OF

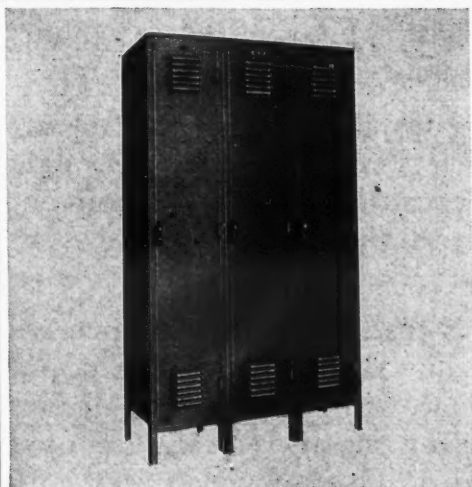
Lockers

FOR EVERY SCHOOL NEED

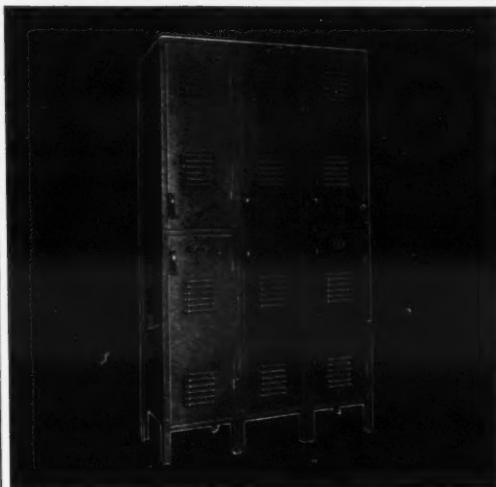
These Six Types of BERLOY Lockers Are Giving Universal Satisfaction In Thousands of Schools Nation-Wide

As a result of detailed knowledge of school problems gained through many years in this field, BERLOY Lockers are so designed that in arrangement, service and other features they ideally meet school needs. They are made by an organization with 44 years' experience in fabricating steel products . . .

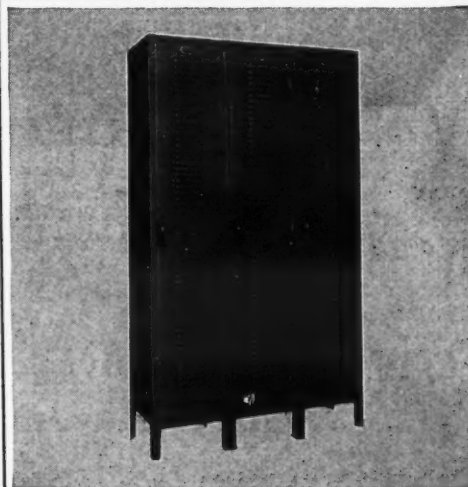
Full information and prices on the BERLOY line may be secured from your local BERLOY representative or by writing The Berger Manufacturing Company at Canton, Ohio . . . Branch Offices at New York, Philadelphia, Boston, Cleveland, Chicago, St. Louis, Minneapolis, Los Angeles and Detroit . . .



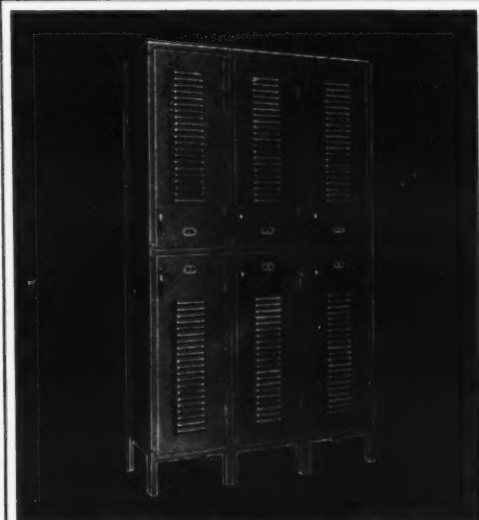
Single-tier standard louver—the most popular general purpose locker.



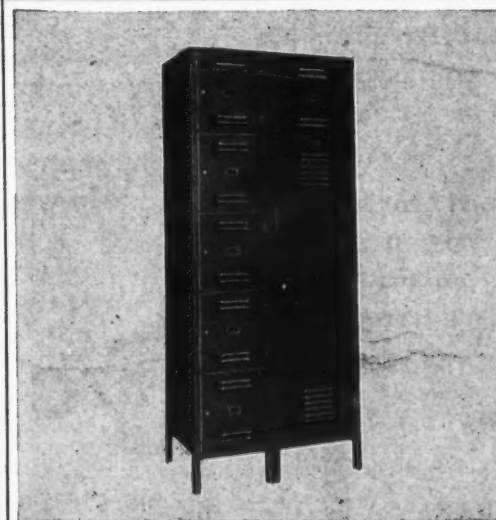
Double-tier standard louver—a very desirable locker where space is limited.



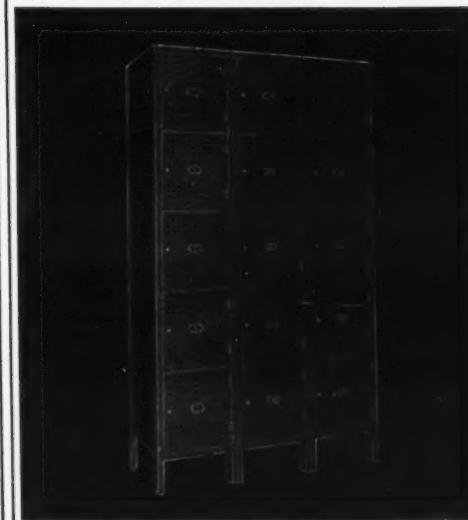
Single-tier full louver locker—for use where an extra amount of ventilation is desired.



Double-tier full louver locker—most widely used in gymnasiums.



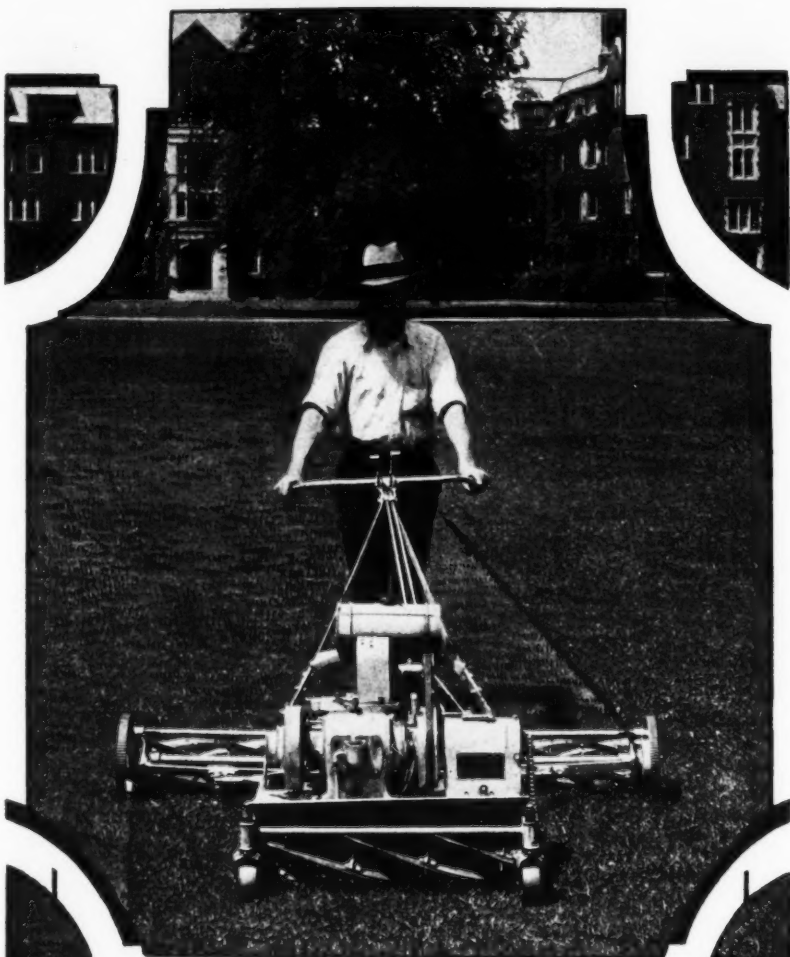
Combination locker—designed for six pupils yet takes the space of only two full length lockers.



Compartment locker—five compartments high for use when coats are seldom worn.

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Are they safe from traffic dangers?

With traffic conditions becoming more hazardous, school board officials cannot afford to ignore the increased responsibility for children's safety.

The modern idea of maximum safety is to enclose playgrounds with Cyclone Fence. Throughout America, this dependable fence is keeping thousands of children within bounds, out of dangerous streets, and saving many lives.

Cyclone Fence is made of durable copper-steel. Fabric galvanized by the "Galv-after" process developed by Cyclone. All parts heavily galvanized. Cyclone Fence lasts for many years without upkeep expense. Erected on H-column posts for greater strength and durability.

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Cyclone Fence

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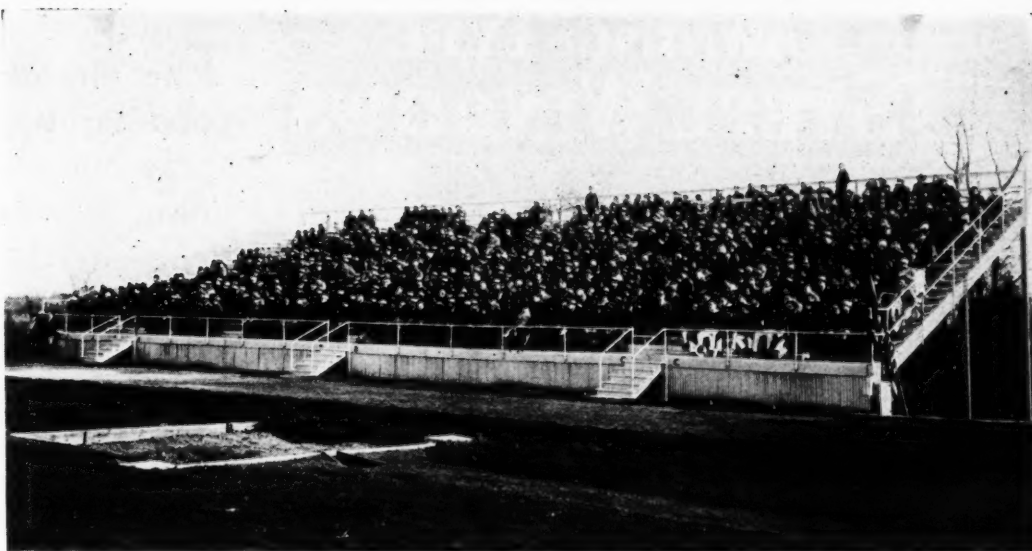
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modern,
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A Pittsburgh-Des Moines Grandstand at Ursinus College, Collegeville, Pa. Capacity 1440 persons.

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The clear space beneath the stand may be utilized for dressing rooms, offices and storage—roofed by the water-tight construction of the seats above. The PDM Grandstand is built in standard sections—which can be added to or double-decked as required. The upkeep is low—an occasional coat of paint. The high investment value is always there. Ask about our deferred payment plan.

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(Concluded from Page 130)

Board of Education Resents Congressional Interference

The District of Columbia board of education disapproves a proviso in a bill before Congress appropriating money for the new Roosevelt High School, because it dictates the use to which will be put the building now occupied by the Business High School, to be no longer used for high-school purposes when the new building is finished. The proviso is to the effect that the building to be abandoned for high-school purposes shall be used for "an elementary school." At first the proviso stated that it should become a "colored elementary school." It is located in a district occupied largely by colored pupils and if it is to be an elementary school at all it would evidently be a colored school. The board had planned to use it for its Americanization School.

The concern of the Board is not so much with any interference with its very immature plan for the future use of a building no longer needed, but with the proposed action of Congress to interfere in what is a purely administrative matter within the functions of the board. Congress appropriates money for building schools and authorizes their erection, but the board has always determined the use to which each building is put, deciding itself which schools should be for whites and which for colored, and which for special schools for special children, Americanization work, etc.

New Director, National Committee on Illiteracy

Dr. M. S. Robertson of the Louisiana State Education Department, who has been chosen director of the National Committee on Illiteracy has assumed his duties at the headquarters of the committee in Washington. The director is a native of Alabama, but has lived most of his life in Louisiana. He was educated in the public schools of that state but received his master's degree and his doctorate from Peabody College for Teachers, Nashville, Tenn. For the past few years he has been a supervisor of elementary education in the state department of education. He has done notable work in the eradication of illiteracy in Louisiana, and it was for this reason he has been selected for the national work.

Dr. Robertson has not resigned from his Louisiana position, but has been granted a year's leave of absence by Mr. T. H. Harris, state superintendent of public instruction. Whether or not the position in Washington becomes permanent depends upon the future need for the office and whether funds are available for the work.

The Passing of Two Washington Schoolmen

Two well-known schoolmen have died in Washington during the past month, Dr. Frederic E. Farrington, owner and headmaster of the Chevy Chase School for Girls, and John A. Chamberlain,

supervisor of manual training for the public schools of the District. Both have been active in local and national school affairs.

Dr. Farrington became well known throughout the country during the several years that he was associated with the U. S. Office of Education, under Commissioner P. P. Claxton. Prior to that time he had been for six years a professor at Teachers' College, Columbia University, coming to New York from the University of Texas where he had served as an assistant in the department of education.

Chicago Correspondence

About ten years ago, Supt. William J. Bogan, who was then principal of the Lane Technical High School, began an agitation for a new building for this American school entity. Finally, a large site was selected at Anderson and Western Avenues on the north side. Since this site was chosen, the site itself, as well as the plans for the proposed building, have been constantly in controversy. The school board has now let contracts for a new building which is to have a capacity of 6,200 pupils and which is the first unit of a vast educational center. An illustration of the architect's general perspective drawing was published in the SCHOOL BOARD JOURNAL for June.

The board of education has recently let contracts for the first unit of the buildings, to cost \$5,500,000. This amount figures out to 42.5 cents per cubic foot, or \$887 per pupil. The officials of the board are complimenting themselves on this low cost, because their recent bids for the Phillips High School amounted to 57 cents per cubic foot. One of the largest construction companies in Chicago bid on the entire job and its total tender amounted to nearly \$500,000 higher than the sum submitted by nineteen contractors. The situation caused a sharp controversy, in which the Chicago builders' association made an impassioned outcry against the school board and its building committee.

The Lane Technical High School was originally built to house 1,200 pupils, but the school has an enrollment of nearly 5,900. Its classes are scattered in the main building, in 47 portables, and in four branch buildings. A part of the school is a mile and a half from the original building.

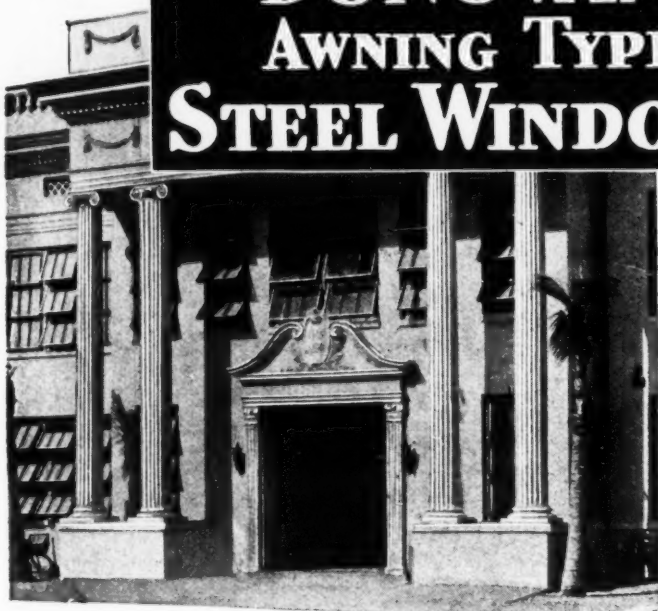
The Chicago schools have been asked to cooperate with the local woman's club in a campaign for destroying ragweed plants which are the cause of hay fever.

A new labor union has been formed in Chicago, namely, the Union of Bus Attendance for Crippled Children. It is the only union of its kind in the country and is affiliated with the American Federation of Labor. A total of 1,500 crippled children daily attend classes in Chicago's four schools for crippled children, traveling back and forth in 44 busses maintained by the board of education. Each bus has an attendant who travels with the bus. Each attendant must pass several examinations, including a mental test, a first-aid test, and a civil-service examination, before they are eligible to appointment.

A series of mishaps befell the schools about the middle of June. An explosion occurred in the chemistry laboratory of the Kelly Junior High School, where members of a boys' club were conducting an experiment. Two boys were injured, one losing his hand. The classroom was upset and

Invented and
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JOHN J.
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Diffused sunlight and draughtless ventilation are provided for schools, offices and other buildings by Truscon Donovan Awning Type Steel Windows. Operate very simply without window poles by the movement of the lower sash which controls the upper sash. The shades on the open windows act as awnings. Quality at moderate cost. Literature and quotations on request.

Build NOW While Costs Are LOW

TRUSCON STEEL COMPANY Youngstown, Ohio

Warehouses and Offices in Principal Cities
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the principal fearing a panic, sounded the gong for a fire drill. The entire school membership of 2,100 pupils marched out in drill order. Vandals who broke into the Kershaw School, smashed everything in twelve of the eighteen rooms, and set fire to the building. The fire was extinguished by the fire department with a loss of \$4,000. A small fire at the Davis School forced the principal to call a fire drill. The fire was put out with hand extinguishers. A careless automobile driver, a 19-year-old youth, was driving near the Avondale School, and glancing at a newspaper which he held in his lap, drove into a group of pupils waiting for a street car, and injured twelve. While crossing the street, a 15-year-old boy was hit by an automobile and badly injured. The boy was bringing home some groceries at the time of the accident.

Robert C. Moore, secretary of the Illinois State Teachers' Association, recently spoke in Chicago on the financial situation. His speech has been printed and distributed by the Chicago Division of the state teachers' association. Near the close of his address, he severely rapped what he termed "the political patronage and payroll patriotism in the cleaning department."

"The revenue investigation commission and others working on plans to keep the schools going have had their attention called to certain diversions or wastes of the education fund."

"I read in a Chicago paper that a committee of building managers has found that there are seven hundred persons employed in the Chicago schools to clean and care for the school buildings, who could be dispensed with at a saving of about \$1,500,000, without any loss in efficiency. It is stated that these extra employees are not appointed primarily to be of service, but to give lucrative jobs to the friends of politicians."

"The same newspaper report quotes the National Education Association as authority for the statement that Chicago spent 53% more for school-building operation than the average per pupil for the same expense in other larger cities of the country, and 16 per cent less for instruction. I heard practically the same statement made by another authority. Comparing the two cities alone,

New York pays \$8.22 per pupil for school-building operation, while Chicago pays \$17.49; New York pays \$114 per pupil for instruction, while Chicago pays only \$83.97.

"Evidently political patronage and pay-roll patriotism in the cleaning department and elsewhere are expensive to teachers."

"Other studies have found that in the last few years the percentage of the Chicago education fund used for operation and maintenance has increased and the percentage used to pay for instruction has decreased. It seems clear that the parasitical, political payrollers are absorbing the funds that should be used to pay salaries."

NEW RULES & REGULATIONS

BALTIMORE SCHOOL-PROPERTY REGULATIONS

The board of education of Baltimore, Md., in its recent annual report, sets forth its policy regarding the use of school property. During the past year permits were issued as usual to outside organizations such as civic and improvement associations, social and athletic societies, parent-teacher organizations, the various city and state teachers' associations, school clubs, alumni associations, and various units of the school system for use of buildings or rooms for meetings, operettas and the like. Under these permits, an aggregate usage of school buildings or portions thereof amounting to 2,500 nights was granted by the board during the scholastic year 1928-29. The regulatory provisions are summarized as follows:

1. No privileges shall be granted that interfere with the regular schoolwork.
2. The name of the public schools shall not be associated with any exhibition or entertainment for which there shall be a charge for admission.
3. The subjects of addresses must be submitted to the board and approved by it, and the schools where such addresses are to be delivered determined by the board.

When Speed Counts and Cost Increases

The almost incredible speed with which good painting can be done with a DeVilbiss spray outfit, and the remarkably low cost of doing it, solve many a school maintenance problem during the short vacation period. We will gladly give you complete information about specialized DeVilbiss spray outfits for school maintenance and manual training use.



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4. The board allows suitable school property to be used for entertainment and festivals under the immediate supervision of the principal of the school concerned where admission may be charged and refreshment sold, provided in each case that a detailed program of such entertainment or festival be approved by the board of superintendents, and the proceeds of said entertainment and sale be used solely for the benefit of the school.

5. The assembly room or other suitable rooms of school buildings may be used by responsible civic and improvement associations for the discussion of questions of a public, civic, and educational, but not of a political or religious nature, and associations or organizations working for the improvement of physical and moral conditions may also be permitted to use certain rooms in the school buildings at the discretion of the board of school commissioners. It is understood that no association of a political or religious nature shall be allowed to use any school building.

6. Only the room specified in the application and permission shall be used.

7. Mixed dancing is permitted under suitable restrictions.

RULES FOR SCHOOL TRANSPORTATION

The board of education of School Dist. No. 1, Portage township, Houghton, Mich., has adopted new standards to govern the use and care of school busses. The rules set up a standard to which busses and drivers must conform for the safety and comfort of the occupants. They read as follows:

Vehicles

1. Inclosed vehicles must be kept in good condition.
2. Equipment:
 - a) Lamp visible both front and rear.
 - b) Good brakes.
 - c) Small approved stove bolted to floor (horse-drawn bus).
 - d) Approved car heater (motor busses). Oil heaters and exhaust manifold heaters are not acceptable.

(Concluded on Page 136)

PLASTER that "STAYS PUT"

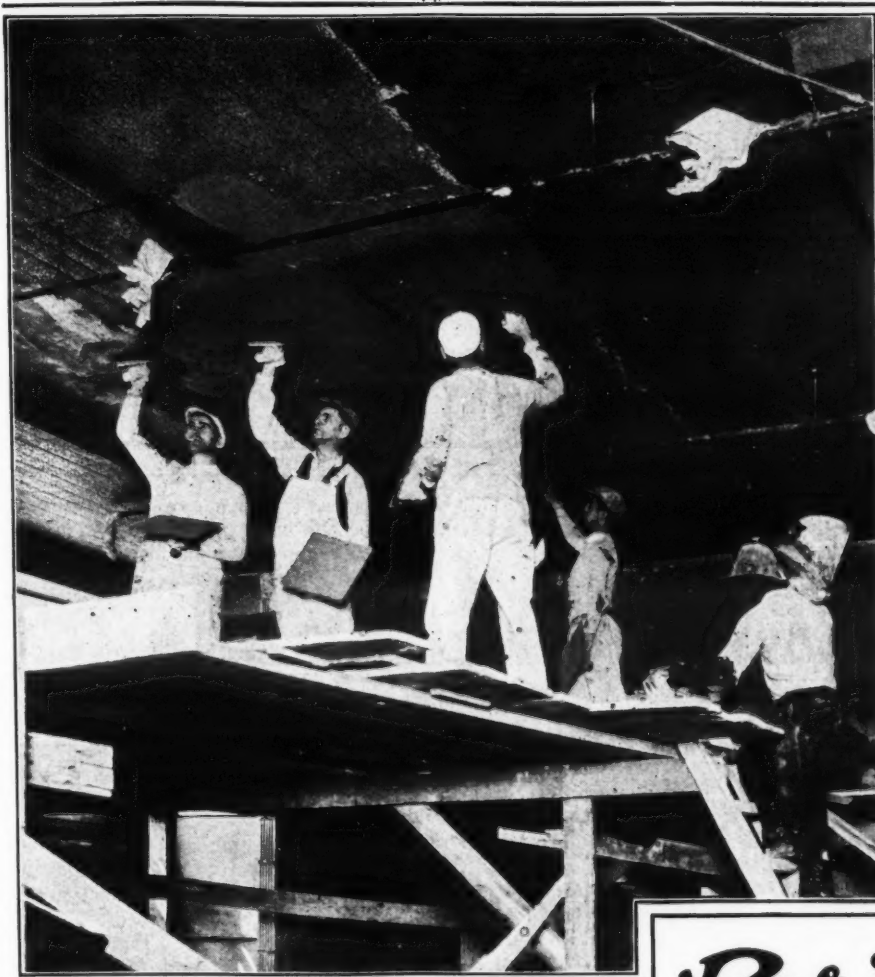
PLASTERERS like to work over Par-Lock, but that is a small part of the story. Because it holds the plaster with a sure, positive clinch, the day's work goes farther and skilled artisans have a better opportunity to observe those refinements of the art which make a better plastering job.

Par-Lock means even more after the job is finished. Its coarse, deeply embedded grit holds the plaster in place for the life of the building. The underlying coatings of pure asphalt protect the plaster against moisture and stain, beside affording a cushion that adjusts differences in expansion between the plaster and the structural surface.

No wonder that conscientious plastering contractors welcome the specification of Par-Lock (or Dens-tect) which architects are writing for every direct plastering operation that needs to be right. The nearest Par-Lock Applier will gladly furnish details.

**THE VORTEX
MANUFACTURING CO.**
1987 WEST 77TH STREET
CLEVELAND, OHIO

(See our catalog in Sweet's)



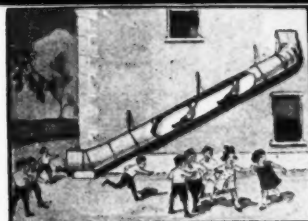
Par-Lock
Plaster Key

PD-7

Write to PAR-LOCK APPLIERS OF (Naming City) at Address Given Below

ALBANY, 425 Orange Street	CHICAGO, 862 Builders Building	DETROIT, 2457 First National Bldg.	NEW YORK CITY, 50 Church Street	ST. LOUIS 1514 Chemical Building
ATLANTA, Bona Allen Building	CINCINNATI, 611 Dixie Terminal Bldg.	KANSAS CITY, MO. 2035 East 19th Street	PHILADELPHIA, 1700 Walnut Street	TORONTO, 2258a Bloor Street, West
BALTIMORE, 613 West Cross Street	CLEVELAND, 218 Hunkin-Conkey Bldg.	MINNEAPOLIS, 434 Builders Exchange	PITTSBURGH, 207 Fulton Building	TRENTON, 339 Broad St. Bank Bldg.
BUFFALO, 958 Ellicott Square Bldg.	COLUMBUS, 751 South Cassingham Rd.	NEWARK, N. J. 24 Commerce Street	SCRANTON, PENNA. Cedar Avenue	YOUNGSTOWN, 503 City Bank Building
CHARLOTTE, 217 Builders Ex. Bldg.				WILKES-BARRE, PA. 904 Second Nat'l Bank Building

SAFEST FOR SCHOOLS



POTTER TUBULAR SLIDE FIRE ESCAPE

Over 2500 now in use

Fire drills, when using a central hallway and staircase, are always a danger, as the world's greatest school catastrophes have proved. A scream or a cry of FIRE can easily create a dreaded panic even during Fire Drill.

POTTER TUBULAR SLIDES

coast the pupils away from the center of the building to the outside air without the least danger from smoke, gases, fire, or panic.

The Potter Tubular Slide Fire Escape has a service record that is approved by the Underwriters' Laboratories.

Write for details, specifications and list of schools using Potter safety methods

Potter Manufacturing Corp.
1858 Conway Bldg. - Chicago

Detroit schools recently ordered 20 Potter Tubular Slide Fire Escapes

IF HE GETS A START - YOU'RE FINISHED



HIS name is FIRE. He grows fast. He comes without your asking him. He always stays too long.

You can free yourself forever from the FIRE menace by installing QUEEN Fire Extinguishers and Equipment.

Strong, quick, easy action. A size and type for every kind of fire risk. Approved by Underwriters' Laboratories, Inc. A leader for 25 years. Sold through a distributor near you.

Write Dept. ASBJ-7 for complete information.

HARKER MANUFACTURING CO.
121-123 W. Third Street
Cincinnati, Ohio

"Fortify for
Fire
Fighting"

Queen
UNDERWRITERS LABELED
FIRE
EXTINGUISHERS
FOR EVERY FIRE HAZARD

(Concluded from Page 134)

3. *Prairie schooner type* (horse-drawn vehicles). For sleighs where roads are not plowed for wheel traffic.

4. *Bus bodies.* The bus body should be provided with an emergency door, and a driver-controlled entrance. Both doors should be controlled from the drivers' seat, in order that he may be sure that no doors are opened until the bus comes to a full stop.

The bus body should provide from 10-in. to 14-in. hip width in seating space for each child and from 12-in. to 16-in. shoulder width. Standard bus bodies must be 14 ft. or 16 ft. in length. The height should be 56 in. at the center inside, and the width of the aisles and seats should conform to the minimum suggested.

If either a single, or a double, row of seats is provided down the center, the width of the bus must be increased sufficiently to allow the necessary aisle space.

Contractors and Drivers

1. Contractor must furnish competent and responsible drivers.

2. Contractor will be held responsible for order and moral conduct of the children in transit to and from school, and the enforcement of all regulations covering conduct of pupils, which may be imposed from time to time by the superintendent of schools. Cases of misconduct on the part of any pupil must be reported at once to the principal of the building which the child attends.

3. All school-transportation vehicles must be brought to a complete stop before crossing any railroad crossing, in accordance with state law.

4. Bus drivers must follow regular winter and summer schedules which show the time of leaving each stopping place. Copies of these schedules must be given to the principals of the buildings to which children are transported. Buses must not arrive more than 20 minutes, nor less than 10 minutes, before the opening of school.

5. Pupils shall not be permitted to transfer from one bus to another without permission from the superintendent of schools, or the principal of the school which the children attend.

6. There shall be no smoking on the bus by either driver or pupils while children are being transported to or from school.

Miscellaneous Duties

1. Each bus driver may be called upon to carry light supplies or the regular supply chest between schools on his bus route and the central office.

2. When occasion demands, it may be required of his drivers to transport teachers to and from schools on the route.

RULES AND REGULATIONS

♦ The school board of Atlanta, Ga., has proposed a new rule, requiring all teachers employed in the future to live within the city.

♦ A controversy has once more arisen in Tiffin, Ohio, over the question of tuition fees from other school districts. The editor of the *Tiffin Advertiser* suggests a rigid rule based on the true cost of instruction. He says: "Why cannot the local board place the matter on a business plane and put an end to what must be a considerable annoyance and what often results in financial loss? If a rule were to be established making mandatory the payment of tuition from other districts in advance, there ought to be no further trouble on that score. This would work no hardship, as arrangements for rebate in the event of the withdrawal of the pupil could easily be made. This is a business rule adhered to in all private schools and it, of course, is recognized as sound business practice."

♦ A new rule adopted by the board of education of Stevens Point, Wisconsin, provides that pupils buy their textbooks from the school authorities and sell them back to the board when they leave school. The *Stevens Point Enterprise* offers the following explanation: "Books may be turned in at the end of the school year and will be paid for by the board of education at the appraised value. Then they will be sold to new pupils at the opening of school in the fall at the same price the board pays for them. It remains to the interest of the boys and girls to take good care of their books and thus insure a fair price for them when turned back. The family will stand the cost only of the depreciation throughout the year. Heretofore each

owner of a book was obliged to find his own buyer when he was through with it, and the price varied. Under the new plan, books in similar condition and of the same value will be taken in at a standard price. Supt. Paul M. Vincent, Pres. Paul Hoffman and their associates on the board of education have worked out an idea which should prove helpful to hundreds of parents in Stevens Point."

♦ The fact that employees have become involved in debts and judgments has prompted the board of education of Madison, Wisconsin, to express its policy in a resolution which embodies the following: "The board of education views with disapproval the few instances of judgments against the wages of its employees for debt and requests the superintendent of public schools to make certain that satisfactory adjustments are made with the creditors in these instances."

♦ Inglewood, Calif. The school board has placed all three-year teachers of the grammar schools on the permanent list. Under a new rule governing sick leave for teachers, no salary will be paid for the first three days of absence, but full pay will be given for a period of not more than five days in the school year. A doctor's certificate must accompany each teacher's application.

♦ LaGrande, Ore. A committee from the local labor organizations has asked that the school board discontinue the policy of employing married women teachers.

♦ Somerville, Mass. The school board has amended its rules, providing that no classroom teacher may be elected if he or she is beginning service after the 45th birthday. An exception provides that the rule may be temporarily suspended by a two-thirds' vote of the board.

♦ Marblehead, Mass. Under a new rule of the school board, married women may no longer be appointed to teaching positions in the schools. Such teachers may be employed as substitutes.

♦ SUPT. R. E. E. CAMPBELL, of Coventry, R. I., has been reelected for another year.

♦ SUPT. H. E. LOOP, of Shelton, Wash., has been reelected for a two-year term.

♦ MR. E. L. VANDELLEN has been elected superintendent of schools at Ventura, Calif.

RENOVATE NOW DURING VACATION . . . SAVE TIME AND MONEY

By applying Lapidolith, Lignophol, and Cemcoat, three Sonneborn products which add life and beauty to Cement, Wooden Floors, Classroom Walls and Ceilings.

VACATION TIME is here—No boys and girls running around to interfere with your work—Now is the time to apply Lapidolith, Lignophol and Cemcoat to add to the life of the school building.

Lapidolith, a Sonneborn product, makes Concrete Floors granite-hard. *Lignophol*, another Sonneborn product toughens Wooden Floors and

prevents warp and rot. *Cemcoat*, another Sonneborn product is a very durable paint for Walls and Ceilings that can be washed endlessly. The country's foremost schools and colleges are using these and other Sonneborn products for their lasting protection and low cost of application.

Mail the coupon below for complete information—indicate on the coupon what type of work you plan.

We have every kind of paint and varnish for every school use from floors to desks—from cellar to roof—for inside and out.

For CONCRETE Floors

Hardening and Dustproofing

Lapidolith—This liquid chemical concrete hardener welds the loose particles into a close-grained mass that becomes granite hard. Excellent for basement or any floor receiving hardest wear. The flint-like topping withstands years of traffic. Water or chemicals do not readily penetrate it. Merely mopping and sweeping keeps a Lapidolithized concrete floor sanitary. It eliminates concrete dust. Goes on like water so labor cost is negligible. Equally efficient for old or new floors. Colorless.

Colored Floors

Cement Filler—For floors where decorative appearance is wanted as for hallways, basement rooms, toilets, etc., apply this material over new or old surfaces. Forms a wear-resisting smooth, colored top over rough, pitted or soiled floors. Standard colors. Easy to apply. Labor cost small.

For WOOD Floors

Wearproofing and Dustproofing

Lignophol—This penetrating preservative prevents splintering, checking, warping, and rotting by filling interior wood cells and

fibres with oils and gums. Supplies a toughening binder that increases tensile and resisting power of wood. Safeguards floors against deterioration from dry heat and moisture, also waterproofs. Can be polished with Amalie Liquid or Paste Wax to a lustrous finish.

For Walls and Ceilings

Cemcoat—For hallways and auditoriums—wherever light is needed use Cemcoat Egg Shell or Gloss—the strongest light-reflecting white paint that is made. Not only does Cemcoat reflect more light, but it stays white after other paints turn yellow. Won't chip or peel. Can be washed over endlessly. Comes also in colors.

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Princeton, New Jersey
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Please send literature on the following products:

Lapidolith; Lignophol; Cement Floor
Enamel; Cement Filler; Cemcoat
Sonotint; Amalie Wax Also letters
from satisfied school users.

Name

Address

L. SONNEBORN SONS, INC., 114 Fifth Avenue, New York



A GUARDIAN OF HEALTH!

Water flowing from R-S drinking fountains is pure --- free from the contamination of lip contact --- just a good, refreshing drink safeguarded by a patented Vertico-Slant feature. This arrangement provides a slight slant stream which prevents water from falling back upon the jet.

Let us give you complete information covering the line of Rundle-Spence Sanitary Drinking Fountains.

RUNDLE-SPENCE MFG. CO.

51 Fourth Street
MILWAUKEE, WIS.

RUNDLE-SPENCE



AMERICAN PORTABLE SCHOOLS

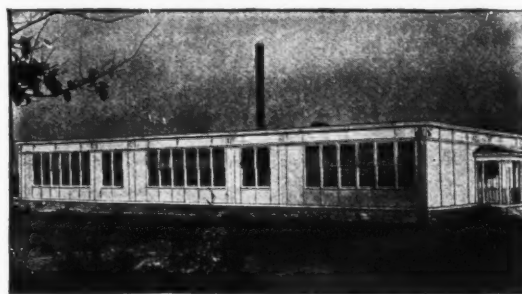
Manufactured in the heart of the fir timberlands of the west, American Portable Schools are used in 44 states, due to prompt shipments and fast freight transportation from Seattle.

These classrooms are everything semi-permanent schools can be — well ventilated, well lighted, regulation size, well insulated. The new double wall construction makes for even greater strength and warmth—siding, insulating paper, sheathing, and Insulite. Austral windows. Double floors. Double exits.

Write for catalog.

AMERICAN PORTABLE HOUSE CORP.

601-611 Alaska St., Seattle, Wash.



How Much Will Your Washroom Save?

THE first cost of the school washroom is slight compared to its yearly upkeep. Then the little extra costs begin to creep in: high water bills, clogged drains, constant janitor attention. That is why so many of the leading academic and trade schools are selecting Bradley Washfountains for what they will *save*.

Bradley Washfountains save 80% on water bills because *ten or more* pupils can wash at each Bradley—and are supplied with plenty of clean, running water from the same supply connections used by *one ordinary washbowl*! This also saves half the cost and trouble of

installation, cuts the number of fittings and connections to a tenth the usual number.

The wide bowl and low sprayhead of a Bradley are so designed that suds and dirty water are all swept away down the self-flushing bowl—never left standing after wash-up period. Janitor work is lightened. Washrooms are always clean and attractive.

A Bradley-equipped washroom saves money from the first day it is put in use. Why not write now for the illustrated Bradley catalogue telling how these savings may be made in *your* washroom?



BRADLEY WASHFOUNTAIN CO.
2223 Michigan Street,
MILWAUKEE, WISCONSIN

BRADLEY
WASHFOUNTAINS

HERE IS A BRUSH THAT WILL CLEAN FLOORS

easily ~ quickly ~ thoroughly



Why add sawdust to the dirt that is already on your floor? This method does away with sweeping compound.



Here is shown a cross-section of the patented SPEED-SWEEP construction. Note the light feed tufts that carry the moisture from the reservoir to the dust. Also the adjustable handle enabling sweeping at the proper angle.

SPEED-SWEEP

Self-Moistening Brushes

These steel-backed floor brushes are light in weight, trim in line and easy to handle. They reach beneath desks and in corners, getting ALL the dirt very quickly. As they sweep, the reservoir feeds moisture, making a sweeping compound of the dust itself. This eliminates expensive commercial sweeping compounds.

The coupon will bring you complete information on our liberal 30 DAY FREE TRIAL OFFER.

Milwaukee Dustless Brush Co.,
102-22nd Street,
Milwaukee, Wisconsin.

Send me details of your FREE 30 DAY TRIAL of a SPEED-SWEEP Brush.

School

Address

Superintendent

A UNIT INVENTORY SYSTEM

(Concluded from Page 42)

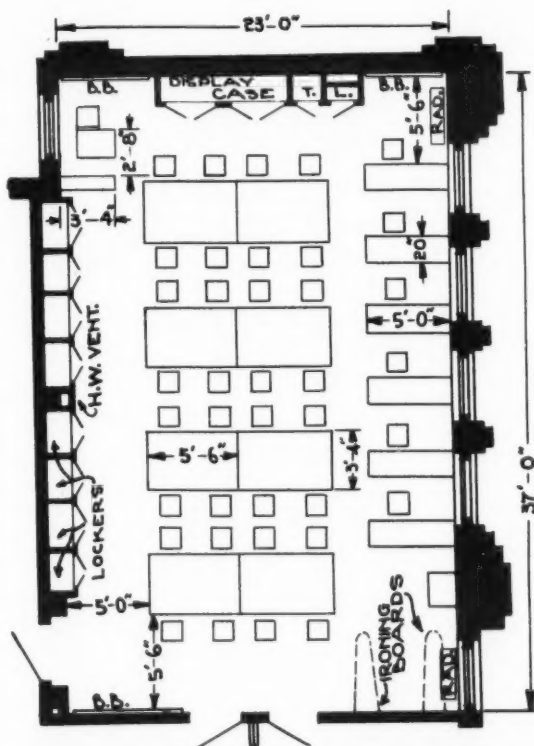
at the left one. Always number from left to right in each building and on each floor. All rooms should be numbered numerically for each school, starting with Number 1 for the first floor, Number 20 for the second floor, Number 30 for the third floor. Offices adjoining classrooms and small storerooms should be numbered the same as the room which they serve and designated by a letter, as 1-a, 1-b, 1-c, 2-a, 2-b. All numbering should first be done on the blue prints of the architect's plans, from which the buildings were built. Then the doors of the rooms should be numbered to correspond with the blue prints. This should enable one to avoid mistakes.

The second step is to prepare a separate floor plan of each room, similar to the plans illustrated. This is an excellent project for any high-school mechanical-drawing class. Our mechanical-drawing classes, under the immediate direction of the regular instructor, completed the task of copying the layouts of all the rooms in our buildings in about two months of regular classwork. The regular work was naturally carried on during the same time.

Distribution of Copies

One tracing was made of each room and five ozalid prints were then made from each tracing. The original tracings are filed in the vault of the board of education. The five sets of prints of the original floor plans were punched and placed in separate loose-leaf folders or binders. This gave us five sets of plans for each of the six schools in the district. These five sets for the school plant were distributed as follows:

1. The principal of each school has one set for his school, which serves as his inventory of permanent equipment and gives the exact location of all such equipment in his school.
2. One copy of each room plan is posted in



ARTICLE	NO.	COST
Chairs	39	\$2.70
Tables	8	14.00 "
Sewing Machines	6	20.00 "
Waste Baskets	2	.60 "
Radiators	2	32.00 "
Ironing Board	2	4.00 "

A TYPICAL ROOM LAYOUT AND INVENTORY LIST

the respective room for the information of teachers and other employees.

3. One complete set—the master set—is kept in the receiving room of the school district's warehouse. The receiving clerk enters each piece of permanent equipment on the proper floor plan as soon as it is delivered by the warehouse men.

4. One complete copy is kept by the business manager in the office of the board, where it is available for ready reference by school executives and the public.

5. The final copy is given to the superintendent of buildings, who is in direct charge of the maintenance work.

The size of each sheet is 8½ by 11 in., or standard letter size. If the form does not have sufficient ruled lines for listing all permanent equipment that may be used in any one room, supplementary sheets are attached to the floor plan.

One advantage of this unit inventory system is that it simplifies the task of taking the necessary inventory. The equipment in each room is checked annually against the original entries made in the receiving-room copy, which is at all times kept accurate and up-to-date. The remaining four copies are corrected in accordance with the receiving-room copy.

It is obvious that this system serves several purposes beyond providing a record. For insurance purposes it provides a complete record. Unused equipment and furniture are readily located, and may be as readily transferred.

SCHOOLHOUSE DEDICATION

♦ The new Seyler Park school at Cincinnati was opened with appropriate ceremonies. The chief address of the evening was made by Supt. Edward D. Roberts. The afternoon addresses were made by Charles Ottermann and James D. Stover, assistant superintendents. A dinner was served by the Seyler Park mothers' club.



HURRY!

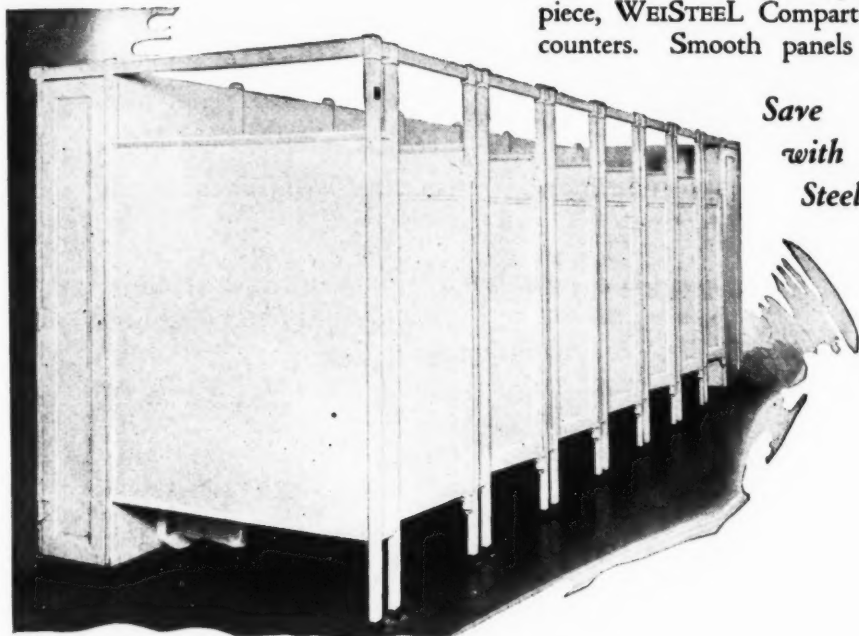
June is gone . . . July days are gliding by, one, two, three, four, . . . almost before you know it schools will again be ready to open. NOW is the time to get started on new WEI STEEL Toilet, Shower and Dressing Room Compartments for those old buildings that need renovating.

Built of steel, with posts, panels and rails anchored together in what is virtually one single piece, WEI STEEL Compartments withstand the punishment such equipment often encounters. Smooth panels which cannot absorb odors, cannot crack—no crevices for harboring dirt and germs—make for sanitation, for easy cleanability, for protection of the health of those who use them every day.

Save
with
Steel

Low in both initial and installation costs, WEI STEEL Compartments are within reach of any school rehabilitation appropriation.

A request will bring full details and specifications without cost or obligation. . . . THE HENRY WEIS MFG. CO., INC., ELKHART, INDIANA.



WEI STEEL

TOILET, SHOWER & DRESSING ROOM
COMPARTMENTS

A MODERN HEARING CONSERVATION PROGRAM

(Concluded from Page 44)

Testing Children Below the Third Grade

The matter of testing children below the third grade is under investigation at the present time. It may be stated that, even at the moment, the 3A or single-combined tone audiometer offers a rapid, individual, and considerably effective test which is usable even in kindergartens, if proper technic is used. The various leagues for the hard of hearing cooperate with the school administrators in supplying advice and funds for putting effective conservation programs into effect.

It is likely that, in the very near future, hearing-conservation programs will be as widespread and effective as the present sight-saving programs.

COMMUNITY SPIRIT IN ATHLETICS AT ROCHESTER, MINNESOTA

(Concluded from Page 47)

first football team in 1897, Dr. Judd was captain, and piloted the team through a most successful season.

SCHOOL-BUILDING MAINTENANCE

(Concluded from Page 52)

panes were replaced by the school glazier, many of them being of heavy plate glass difficult to break and expensive to replace.

The total value of the Highland Park school property exceeds \$6,500,000. The maintenance and repair costs amount to only 2.17 per cent, which is exceedingly low, considering the fact that cities up to 100,000 population in 1929 spend an average of 4.1 per cent of the current school expense budget for maintenance of plants, and cities above 100,000 population spend 5.06 per cent. The Highland Park maintenance work includes every detail of maintenance and repair from roofs to sidewalks.

A LABELING PLAN FOR JANITOR-SUPPLY PRODUCTS

(Continued from Page 49)

The certifying labels used for the three standards for liquid soap, for the two standards in scrubbing soap, and disinfectants and for the two standards in deodorants are reproduced.

The Advantages of the Labeling Plan

A program of identification of ingredients manifestly has its advantages. It furnishes a basis for determining the quality of the product which the purchaser buys. This is especially true in products such as janitor supplies, where the product cannot be measured by count or weight, and where many schools, because of the limited quantity of the product used, do not find it practical to make the necessary tests, or do not have available the facilities for determining the ingredients.

In a product that is susceptible to misrepresentation, there need be no misrepresentation. There should not be. This program affords the purchaser the opportunity of taking advantage of definite specifications in purchases, if he so desires. There is nothing compulsory on the part of the buyer or seller. It does give the buyer the basis for measuring values which he has long desired, and it gives the seller the label or certified form of guarantee, if he desires to take advantage of it. It gives a measuring rod for determining the quality of the product purchased but, equally as important, it furnishes a means of knowing that value is being received

(Concluded on Page 142)



SOLDIERS' FIELD, ROCHESTER, MINNESOTA, SHOWING THE FOOTBALL FIELD ENCIRCLED BY THE STEEL FENCE, THE FIELD HOUSE, AND ON THE RIGHT THE MUNICIPAL GOLF LINKS

WHEN CONSIDERING HAZARDS CONSIDER DUST

Menace to Men,
Machines,
Materials,
Now Controlled

AMERICAN AIR FILTERS

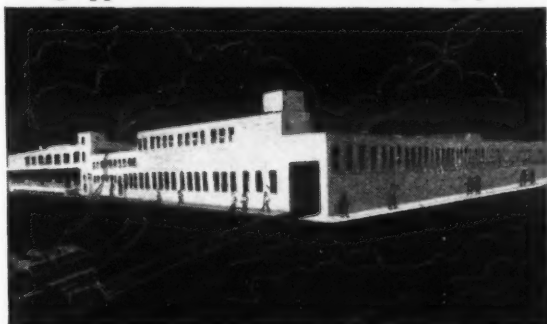
COMBINING PRODUCTS FORMERLY MANUFACTURED UNDER THE FOLLOWING TRADE MARKS:



FREE LITERATURE
Read our bulletins on subjects affecting your business and other activities. Mail the coupon. No obligation.

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One of the greatest tests of efficiency of air filtering apparatus is in food manufacturing plants,



Air Filters Prevent Bacteria in Largest Gelatine Plant

where the prevention of foreign matter and bacterial contamination is essential. The general superintendent of the U. S. Gelatine Company, users of American Air Filters, reports in a survey by the A. C. Nielsen Company: "It is doubtful if we could have maintained our present volume of business if we had continued to use unfiltered air. Whereas we had little control over contamination, we can now assure users of a uniformly clean gelatine." Air filters can effect just as important improvements, business increases, savings and efficiency levels in your interests. **AMERICAN AIR FILTER CO., Incorporated, Louisville, Ky.**

American Air Filter Company, Incorporated,
108 Central Ave., Louisville, Ky.

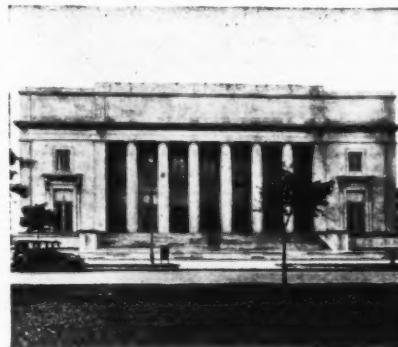
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How Leading Schools and Colleges Raise Efficiency Levels

Rooms and buildings may be kept thoroughly clean at all times, but every stream of ventilating air is laden with street dust and bacteria which finds easy lodgment in the delicate tissues of the lungs and throat. Colds and flu and contagious germs are spread in this way.

Only by a scientifically controlled system of air filtration can the air be cleansed of the dust and dirt and germs that are so destructive to equipment, materials, and to employee health and energy. Industrial and commercial institutions are protecting both products and employees by installing systems for air filtration.



The Walker Memorial Building, Massachusetts Institute of Technology where controlled filtration provides clean, pure air.

Leading educational institutions have made notable advancement in these respects by installing systems of air filtration. The quantities of dust and dirt washed periodically from the cells of these air cleaning units (which otherwise would be deposited on floors and walls, and in the lungs of students) give startling indication of the value of air filters.

A significant testimony to the value of scientifically controlled air filtration is seen in the fact that when the alumni of the Massachusetts Institute of Technology made a gift recently to their alma mater, they decided upon the installation of air filters in the Walker Memorial Building. As skilled engineers they realized in full how great would be the savings to the building in cleaning and decorating costs and how important to students would be the constant stream of purified air.

**CLEANLINESS AND SELF-RESPECT; THESE ARE BASIC ELEMENTS
IN CHARACTER. THE SCHOOL IS EQUALLY RESPONSIBLE
WITH THE PARENT IN IMPARTING THEM**

CRANE

**MAKE CRANE PLUMBING MATERIALS ALLIES. THEIRS IS A DURABILITY THAT
PRESERVES APPEARANCE UNDER THE HARDEST USAGE, AND A MECHAN-
ICAL PERFECTION THAT GUARDS EFFICIENCY AT ALL TIMES**

(Concluded from Page 140)

for the purchase price paid. A known quality product at a known fair price is safer than an unknown product at any price. When the quality of the product is not known, competition centers on the claims for the product, exaggerated or otherwise, without any common standards for price comparisons.

The Cost of the Labeling Plan

There is no heavy item of expense attached to the labeling plan so that there is no reflected cost added to the products sold. Our manufacturers and distributors are charged with the cost of making the laboratory tests. Since it is the custom to make these material tests under any form of merchandising of the products, it entails no greater expense to have the laboratories do the work than to have the companies' own laboratory contacts do the work. There is no fee charged for certification purposes and the labels are furnished free. The purpose of injecting this statement of expense into the discussion of the program is to stress the fact that there is no added expense in the labeling plan to be reflected in the cost of the product.

Why the Labeling Plan?

In all diversified business there will be found sources from which spring misrepresentation. It is an objective of business and industry to eliminate it. It is unethical competition to meet misrepresentation by misrepresentation. If misrepresentation is necessary to get business, the majority of concerns will choose to lose the business. That is a penalty that should not be imposed on honest selling. The labeling or certification plan affords an opportunity for presenting labeled products to those desiring them and constitutes one of a series of labeling projects being initiated by the National School Supply Association.

PUBLISHED OPINION ON SCHOOL VENTILATION

(Concluded from Page 54)

There has recently been considerable tendency to equip with unit heaters and ventilators, but none of these units is provided with humidifiers. An excellent history of the development of unit ventilation with drawings and descriptions of the present-day unit, is to be found in an article by Nesbitt.²⁸ In this he describes the air filters, recirculating dampers, temperature-control dampers, and by-pass chambers. He discusses the split system and location of the unit. In view of the popularity of this type of ventilation this is a much-needed article. Schmidt²⁹ explains the good and bad points of unit systems and states that in modern units there is virtual elimination of fan noise. A good explanation of how the unit systems actually function in service is to be found in an article by Keller³⁰ concerning the ventilation of the new senior high school of Eau Claire, Wisconsin. He makes the statement that the humming does not bother and that the cost of current for heating units, as well as for running fans, is made up by burning far less coal than is consumed in the central fan or furnace systems. Each recitation room has its own unit. There is another heat radiator in each room. Air is forced out into the corridors through grills in the doors and passes out through openings in the lower part of lockers in the halls.

²⁸Nesbitt, A. J., "Ten Fundamentals of Unit Ventilation and Their Application," *AMERICAN SCHOOL BOARD JOURNAL*, 75:70, 74, 164, September, 1927.

²⁹Schmidt, H. W., "Some Aspects of Heating and Ventilating School Buildings," *AMERICAN SCHOOL BOARD JOURNAL*, 75:41, 42, 152, August 1927.

³⁰Keller, Paul G. W., "The Unit System of Ventilating," *AMERICAN SCHOOL BOARD JOURNAL*, 74:38, 144; February, 1927.

CENTRAL VACUUM-CLEANING SYSTEMS

(Continued from Page 50)

50-ft. hose. If valves are properly placed, this will be sufficiently long for large classrooms. The 50-ft. length will reduce the number of inlet valves necessary in corridors, gymnasiums, and auditoriums. A coupled hose 37½ ft. in length will be satisfactory, if the rooms are not too large and there is a sufficient number of inlet valves properly placed. It is better, however, to provide 50-ft. hose, since the coupling reduces flexibility.

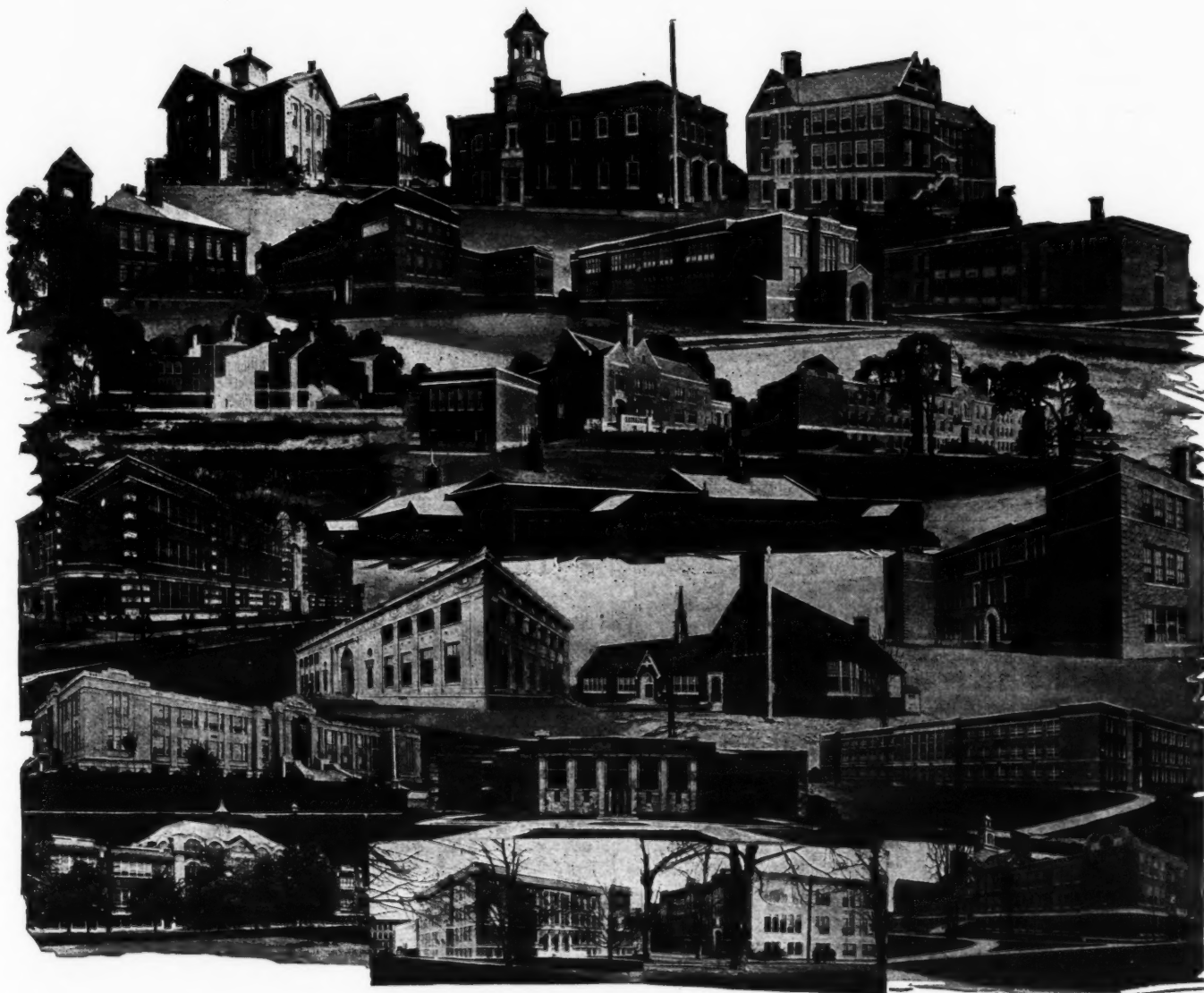
Hose as long as 75 or 100 ft. should never be bought. Such will not be used by janitors. Long hose are difficult to move about. They also cause the amount of vacuum to be reduced to a point where it may be ineffective for cleaning, because the hose have a smaller inner diameter than even the smallest pipes.

Hose should be flexible, light in weight, and large enough so that the volume of air entering the system will not be greatly reduced. Hose having an inside diameter of 1¼ in. is too small to clean bare floors effectively. Hose having an inside diameter of 1½ in. is often used. This is too small and will reduce the volume of air taken into the system, which is essential to the cleaning of heavy dirt from the floors. It is probably best to use hose 1¾ or 2 in. in diameter. These are heavier but cause less friction and admit of the proper volume of air.

Tools and Motive Power

The Handle. For the cleaning of bare floors the handle should be made of nickel-plated, seamless, steel tubing so that it will not be cut out by heavy dirt. An aluminum handle is satisfactory only for removing light dirt or dust. For the cleaning of bare floors the handle

(Concluded on Page 144)



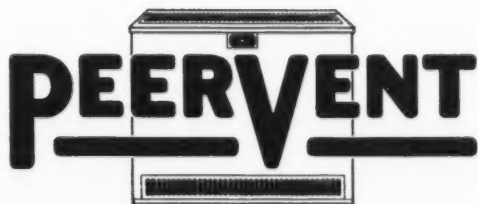
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SINCE the original PEERVENT Heating and Ventilating Unit was designed and installed 19 years ago, thousands of buildings in towns and cities from coast to coast have been equipped with PEERVENTS. These PEERVENTS of nineteen years ago are still giving perfect satisfaction.

With this background, is it any wonder that numerous repeat orders for PEERVENTS are constantly coming in from users? Such repeat orders are proof of satisfactory and efficient service. The PEERVENT of today is backed by forty years of specialized experience in heating and ventilation.

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Made of translucent material (offered in 7 harmonious colors), they permit light without glare and fresh air without draft. ATHEY SHADES are simple and effective in operation and have no trouble-some rollers or catches to stick or break.

Mothers appreciate ATHEY SHADES in your classrooms because they save their children's eyes from unnecessary strain. Teachers prefer ATHEY SHADES, for with them it is much easier to keep the attention of their classes.

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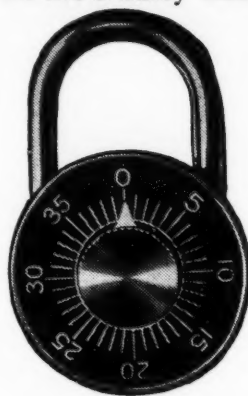
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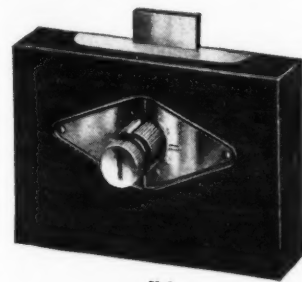
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DUDLEY LOCK CORPORATION

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(Concluded from Page 142)

should have an elbow joint at its top, to serve as a lateral handle for use in guiding the tool, to permit free movement of the handle, and to throw the hose farther away from the operator's body. If there is a shut-off valve in the handle, it should be kept wide open during operation, in order to secure the full current of air and to prevent clogging at the valve or a blasting effect which will be caused by deflecting of the dirt at the elbow joint.

The Tool. Tools used for removal of coarse dirt from bare floors should be of steel. Aluminum tools are satisfactory only for removal of fine dirt or dust. For cleaning bare floors the slot should be wide enough to permit of the passage of a large volume of air. For cleaning carpets the slot should be wide enough to prevent clinging of the material to the tool.

The Motor. The motive power should be sufficient to produce enough vacuum for operating all cleaners at the same time. The power required is about 2.5 h.p. per cleaner. Since corridors and many special rooms may be cleaned during school hours, the number of rooms to be cleaned after school will determine the number of cleaners that will have to be operated between four and six o'clock. Although it requires but from seven to eight minutes to clean a room by vacuum, there are other jobs that must be performed after school. It is, therefore, unwise to figure more than 12 rooms per cleaner for afterschool use. This means that there should be 2.5 h. p. for each 12 rooms in a building that must be cleaned after dismissal of school. A building then, of 24 rooms, would require a 5-h.p. motor. A building of 48 rooms would require a 10-h.p. motor. These are the minimum requirements for a vacuum-cleaning system which is capable of doing effective work. Even more power would be advisable, especially if some cleaners are remote from the vacuum

producer. A common fault with installations is that small motors are installed and the vacuum produced is insufficient to move a large volume of air to adequately clean bare floors when all cleaners are in operation. The result is that only one or two cleaners can be used and consequently only a part of the floors can be cleaned each day.

The Vacuum Producer

Vacuum may be produced by centrifugal fans or pumps. The fan producers are more simple and will wear longer though both may be effective in producing vacuum. For effective cleaning, it is important that a large volume of air shall be displaced. The volume of air depends upon the amount of vacuum and the size of pipes, hose, handle, and tool. If the vacuum is too high, however, the air will be rarified so that it has less carrying power and the excessive velocity will cause greater friction, resulting in greater wear on the apparatus.

C. M. Winspear, a graduate student in school administration at Cincinnati, Ohio, has gathered information through head custodians designated by business managers or assistant superintendents in 77 cities where vacuum-cleaning systems were installed.

1. Seventy-five per cent of the users of the central vacuum-cleaning system state that the system is giving satisfactory service.
2. About 60 per cent of the users report daily use of the system.
3. Operation and maintenance expenses reported for a one-year period are not excessive.
4. There is a big loss sustained in the non-daily use of systems installed. Nonusers say idleness of the plant is in the main due to old-fashioned installations.
5. Cost, rather than ineffective performance, is the reason 9.45 per cent of users give that the system is not satisfactory.

6. The age of the operator exercises a negligible influence upon the efficiency of operation of central vacuum systems.

7. Head custodians are favorably disposed toward the system and feel that it is a satisfactory method of cleaning school buildings.

The general conclusions of the study as stated by the investigator are: "The present status of vacuum cleaning in schools shows that more central systems are used than any other kind of vacuum-cleaning system; that central plants are functioning every day under heavy duty and are approved unqualifiedly by 77.18 per cent of users reporting; and that these systems are a sanitary, convenient, economical, and aesthetic means of dust removal from school buildings."

♦ Tucumcari, N. Mex. The junior high school has been placed on an accredited basis, beginning with the next school year. In compliance with the rules of the accrediting system, all teachers must be the holders of degrees, and all requirements of the northcentral association of colleges must be met.

♦ Princeton, Ill. The voters of School Dist. No. 115 recently approved a school-bond issue of \$111,000 for a junior high school and grade school. The building will provide accommodations for 350 pupils.

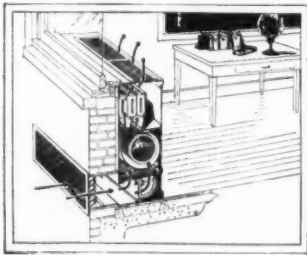
♦ Colorado Springs, Colo. Under a new plan of financing, the school board has proposed a bond issue of \$1,000,000, which is to take care of the retirement of the junior-high-school bonds and the erection of much-needed elementary schools. The new plan is proposed as a solution of the problem of raising \$100,000 for eleven years to retire the school bonds and to obviate a large increase in the tax levy.

♦ Rockford, Ill. Upon the recommendation of Supt. Frank A. Jensen, the school board has taken up the matter of a school-building program, calling for the erection of two senior high schools, additional junior high schools and a number of elementary schools. The new program follows a complete survey of the Rockford school system, made by the building committee of the board.



Vacation Days!

Will classroom air undo vacation's benefit... when they come back to school?



THREE months of bracing outdoor air will bring them back to school in glowing health. But just a week or so in stuffy, dusty classrooms... and the glow will begin to fade!

Will they come back to such classrooms... or to classrooms where it's summer all year 'round... as it is where the air is governed by Sturtevant Unit Heater-Ventilators? These units bring in outdoor air... filter it clean... temper it to summer warmth... then drift it gently into the room, without a puff of draft. Vacation's benefits don't fade in pure, invigorating air! Students keep healthy and alert.

Now, while they're out in the open, building up their health, build health into their classrooms. See how other schools... all over the country... have done it. Catalog 361 will show you... it would be a pleasure to send you a copy.



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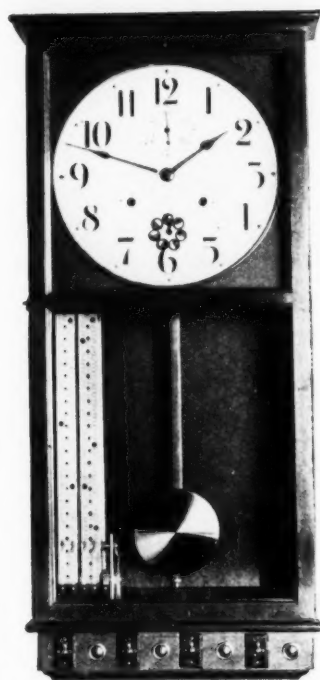
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The greatest saving that you can make in the operation of your school lies in EFFICIENCY OF EFFORT AND ECONOMY OF TIME.

Install a

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Program Clock

and save an hour each day.

With no increase in payroll, someone will have an extra hour to devote to his duties. Superintendent, teacher or janitor, whoever accepts the task, will freely admit that an hour is spent every day in watching the clock to call and dismiss classes. The present expenditure thus brings a return of 100% over a period of perhaps forty years.

Why delay the investment?

Order a MURDA now.

Install it before school opens.

\$150 F.O.B. Factory

Install it Yourself
It requires no servicing

Built upon an 80 beat Seth Thomas movement, the Murda Program Clock is a simple, dependable device which will operate automatically all the bells in the building on one to four separate circuits, silencing them at night and on Saturday and Sunday. No expert servicing is ever required on its simple mechanism. Initial expense is low and cost of upkeep is negligible.

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FACTORY — ADDISON, NEW YORK

1855 - 1930

PROFESSIONAL PRACTICE IN SCHOOL BUILDINGS

(Concluded from Page 63)

tractors is astounding. It is difficult to explain why there should be such a great difference in estimating costs from the same plans and specifications submitted by the architect. Uncertainty is probably the chief reason. A contractor, if he is not familiar with, or sure about certain specifications, will allow plenty of margin. This uncertainty would be corrected by your quantity survey. We live in a scientific age in which guesswork and indefiniteness are taboo. Why tolerate uncertainty in the building activities when the solution is here?

"There has sprung up in the educational field a group of specialists which corresponds to this survey group in the building industry. These educationists call themselves educational engineers. Their purpose is to take the curriculum offerings and type of organization of a school or system of schools, and interpret these to the architect in terms of classroom and special-room requirements. Generally, the superintendent of schools becomes the interpreter, but at present with the differentiation in organization and the change of emphasis on subjects and school activities, the superintendent frequently prefers to turn over this analysis to a specialist who is familiar with the special techniques of school organization.

"For the past decade, I have considered it essential to have on my staff a specialist on the platoon plan of school organization. This specialist can take a course of study from any system, work it out with the platoon organization in mind, and then make out building requirements for the same. By means of this connecting link, I have been able to eliminate waste and to effect a number of economies.

"Ever since the advent of steel, great changes

have taken place in the building trades. There are new materials involving new techniques and there are new architectural styles. Who but the quantity surveyors are going to interpret all these modernisms to the contractor and consumer. Science and invention are traveling in airplanes and the building industry stands in need of an interpretative and controlling body."

THE DEWITT CLINTON HIGH SCHOOL, NEW YORK CITY

(Concluded from Page 59)

Since the basement and subbasement of the building are at a lower level than the street sewers, two ejector pots, operated by electricity and compressed air, have been installed to raise the contents drained to a height of 32 ft., where it is discharged into a main house sewer.

Detailed information about the building is given below:

Construction Data

Contract awarded.....June 8, 1927
Building occupied.....May 1, 1929

The Building

Sub-basement: Boiler room, heating and ventilating plant, pump filters, hot-water heaters, and other mechanical equipment.

Basement: Shop and storeroom, printing room, band-practice rooms, rifle range, program room, and cafeteria seating 1,260.
First floor: Four general science rooms, preparation and storeroom, business practice and typewriting rooms, reserve officers' training corps, bank, principal's office, teachers' organization room, publication office, and 24 classrooms.

Second floor: Two physics laboratories and three classrooms, storeroom and preparation room, biology classrooms and laboratories, storeroom, and preparation room, biology office, six drawing rooms, exhibit room, and 26 classrooms.

Third floor: Three chemistry recitation rooms and laboratories, chemical preparation, acid, and apparatus rooms, balance room, chemistry office, library and classrooms, teachers' reading rooms, conference rooms, workroom, and stockroom, two restrooms, bookroom, four offices, and 40 classrooms.

Fourth floor: Two music rooms, an instrument room, and one wardrobe room.

Gymnasium Wing

Sub-basement: Heating and ventilating equipment, natatorium, shower, locker, and drying rooms, handball courts, sterilizing and suit room, and two offices.

Gymnasium Building

Basement: Locker room, handball court, conference room, and visiting team and shower room.

First floor: Two gymnasiums, instructor's room and supply room, office, emergency room, and storeroom.

Second floor: Locker room, corrective-training room, physical-examination room, general medical, and waiting rooms, and dental clinic.

Third floor: Gymnasium, three hygiene classrooms, and an office.

Cost of general construction.....	\$2,572,000
Cost of heating and ventilation.....	323,387
Cost of sanitary equipment.....	170,860
Cost of electrical equipment.....	104,439

Total cost of building and equipment.....	\$3,912,512
Cost per cubic foot.....	45 cents
Size of plot.....	28 acres
Size of athletic field.....	21 acres
Main frontage.....	700 ft. on Mosholu parkway
Auditorium capacity.....	1,963

THE FUNDAMENTALS OF PUPIL COST ACCOUNTING

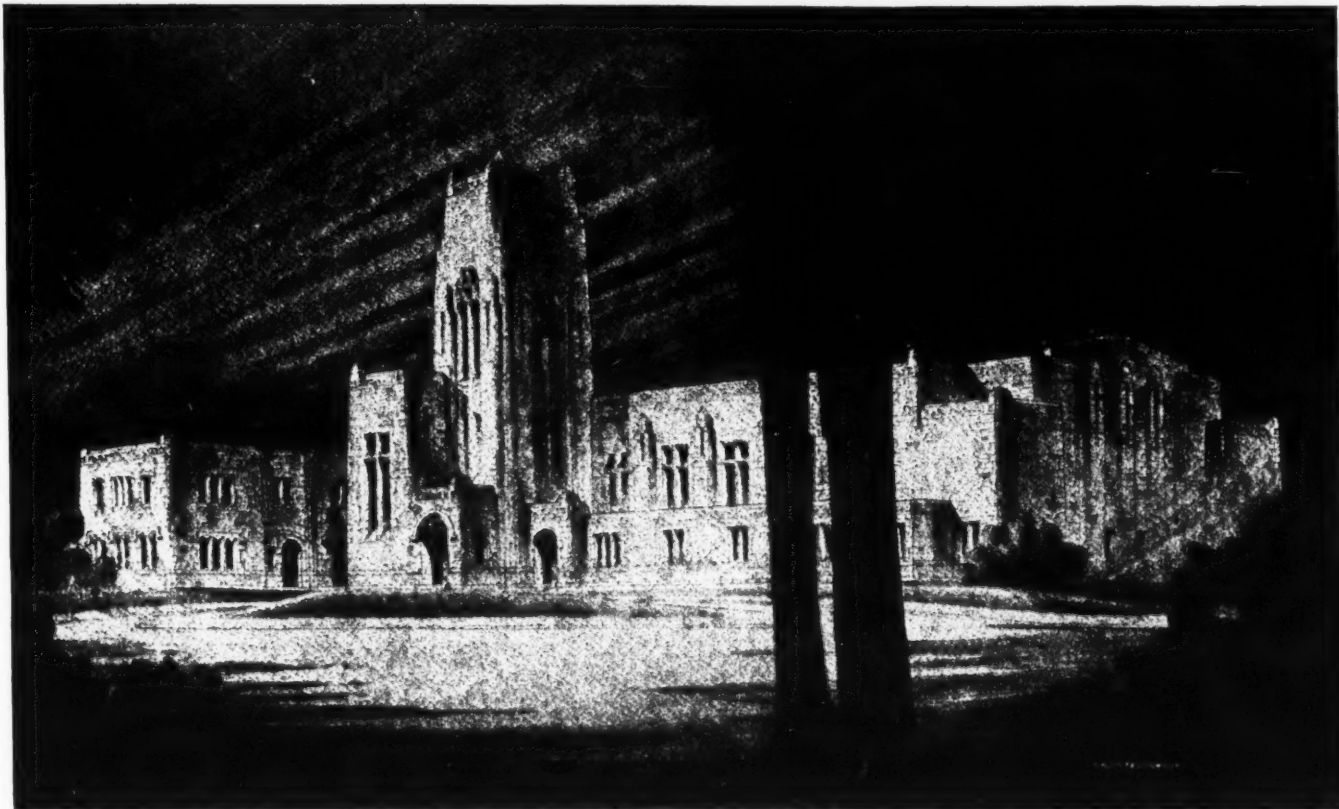
(Continued from Page 56)

sessions only, count each half day as a full day; this does not refer to *part-time* or *continuation* schools), and divide the sum, which is the aggregated attendance in days, by the number of days the school was actually open for instruction. To secure average daily attendance for a group or system of schools, add together the average daily attendance of each school in the group or system, obtained as above. The average daily attendance should be ascertained for each type of school as indicated in the blank.

11. *Number of days schools were actually in session.* This should include only the number of days the schools were actually open for instruction, and should not include legal or religious holidays on which schools were not in session, nor days on which the schools were closed on account of inclement weather, teachers' institutes, or any other cause. A school term may be 9 months, or 180 days, but on account of holidays or other causes the schools may have been actually in session for the instruction of pupils a number of days less than the legal school term.

In a school system having different lengths of school year in its various units, the average num-

(Continued on Page 149)



Architect: Robert F. Daggett
Indianapolis

THIRD CHURCH OF CHRIST, SCIENTIST
INDIANAPOLIS, INDIANA

Heating Contractors: Hayes Brothers, Inc.
Indianapolis

CHURCHES

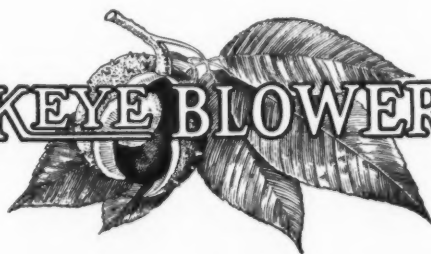
as well as Schools and other Public Buildings where people congregate, are turning to Unit Ventilation for tempered, filtered, fresh air.

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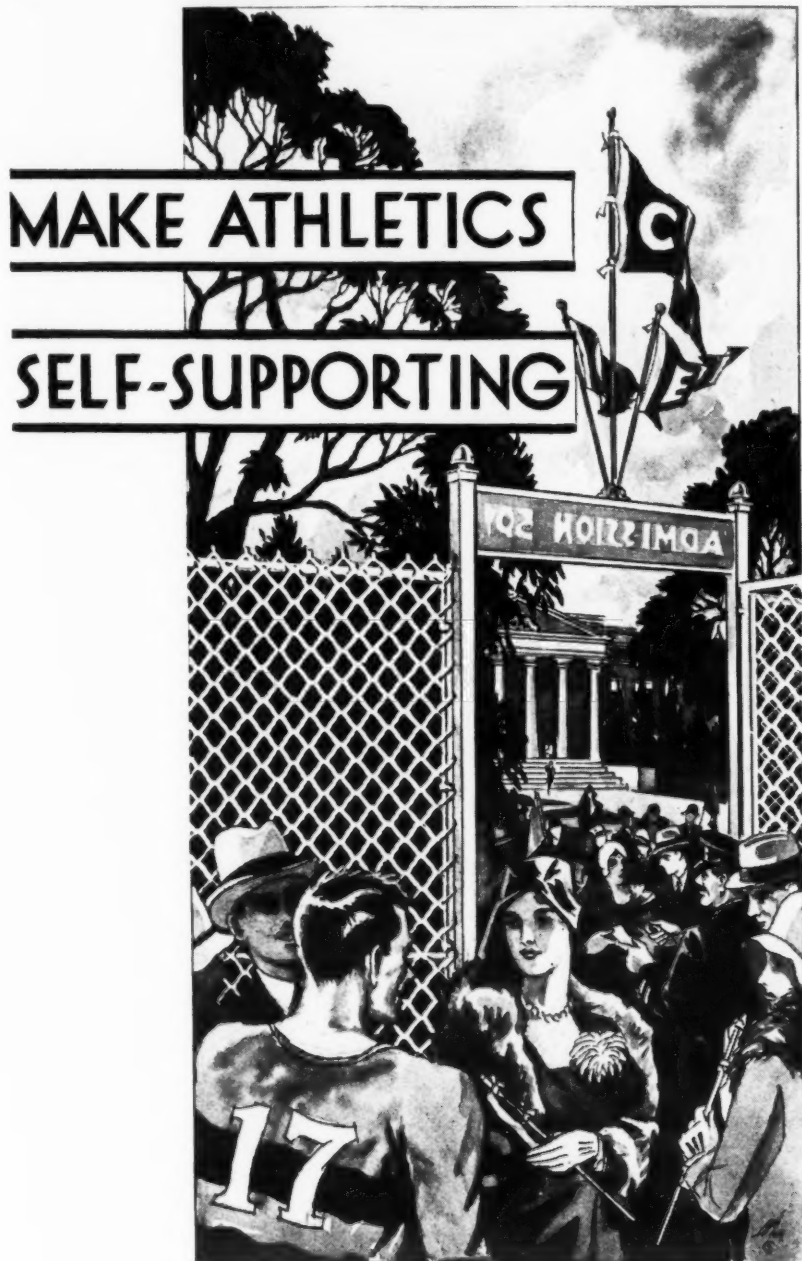
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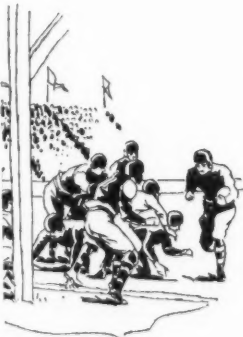


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When the athletic field is Anchor Fenced, gate receipts will more than cover the cost of coaches' salaries, uniforms and equipment.

The income from a single season usually pays for the entire cost of an Anchor Athletic Field installation, and an Anchor Fence practically requires no maintenance expense.

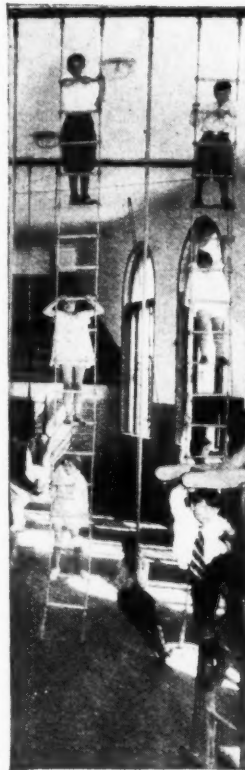
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 Cannot be left on combination.
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 Easily read dial, with option of color combinations.
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You can better appreciate its many advantages by personal inspection. We will be extremely pleased to furnish a sample upon request.

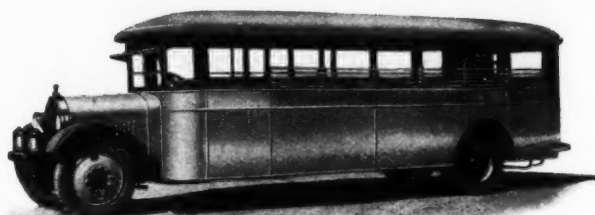
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8 IMPORTANT REASONS FOR SPECIFYING "WIENER BODIES"

1. Comply with all city, county, and state requirements.
2. Engineered and built in a modern plant with modern methods.
3. Blending attractiveness, sturdiness, and lightness.
4. The safety and comfort of your pupils are assured.
5. Years of service with low maintenance cost.
6. Hundreds of satisfied users attest to their superiority.
7. Best at prices that are cheapest in the long run.
8. Built and guaranteed by the pioneers of the bus body industry.

FOR YOUR SCHOOL BUSES—SPECIFY "WIENER BODIES"

Priced and Built Right for Your Individual Requirements. Let Us Quote YOU.

WIENER BODY COMPANY,



Newark, New Jersey

(Continued from Page 146)

ber of days in the school year is found by dividing the combined aggregate attendance in days of all schools in the system by the combined average daily attendance of all the schools in the system.

12. *Number of schools.* A school, for reporting purposes, is defined as a one-room school employing only one teacher, or a school of two or more rooms usually housed in the same building, and having a principal in charge. In case an elementary school and a high school are housed in the same building, count them as two separate schools. The number of kindergarten schools will be the same as the number of buildings which maintain kindergarten departments. *In buildings having more than one teacher, each room used should not be considered a school for the purposes of the financial report.*

13. *Value of school property.* There are three plausible bases on which the value of school property may be estimated: (1) original cost of building, (2) replacement value, and (3) present value. To secure uniformity in reports it is suggested that the original cost of school property be reported. The replacement value; that is, what it would cost to replace the present building, does not represent the true and actual value of such property and does not represent the original cost to the taxpayer. Furthermore, such values are largely gross estimates. The present value of school property is likely to be a mere guess, since, if such property were sold for commercial use, it might bring considerable more or less than its present value for school purposes. The original cost, therefore, is the most accurate value, is the most easily secured, and represents what a given building cost the community. The original cost, however, does not take depreciation into account, but in many instances this factor is offset by appreciation, or increased value in school lots or even in school buildings. To secure accurately the values of depreciation and appreciation is practically impossible.

Definition of Disbursements

1. *General control, administration.* a. Educational administration—Superintendents of schools and their offices: Include all payments for salaries

of superintendents, assistant or deputy superintendents, whose duties are largely administrative and who are not primarily supervisors of instruction; for office assistants, clerks, and stenographers; for stationery, postage, supplies, traveling expenses, printing, and other miscellaneous expenses in connection with the office of superintendent. All expenditures connected with Item 1a should be reported here.

1b. *Business administration.* Board of education and business office: Under this head should be included all expenditures for the salaries of members of school boards, of secretaries, and of other officers or assistants engaged in the business of administration, and all other expenditures for such officers for supplies, traveling expenses, etc.

When personal bonds are required of school officers and are paid for by the city school board, such expenditures should be entered here.

Include the salaries and expenses of those having charge of the construction and maintenance of physical properties, such as superintendents of buildings, school architects, inspector of buildings, superintendent of repairs, and schoolhouse commission. Payments to special employees engaged exclusively on new work should be charged to capital outlays.

Include the salaries and expenses of the superintendent of supplies, business manager, or other officers whose duties are concerned with the purchase and distribution of supplies.

Include operation and maintenance of administration building or rents paid for general control offices. All expenditures connected with Item 1b should be reported here.

1c. *Other administrative officers and employees:* Include payments for salaries and expenses of persons who are in the central office exercising direct control of research or of field workers doing health work in the schools or enforcing the compulsory education law. Include salaries and expenses of officers in charge of obtaining vocational information, of giving vocational guidance, and of issuing working permits, and of census enumerators, including clerical help, necessary blanks, and other supplies, car fare, etc. All expenditures connected with Item 1c should be reported here.

2. *Instruction.* a. *Supervisors:* Include salaries and expenses of all persons who have to do with the actual improvement of instruction through direct contact with principal or teacher including activities as (1) preparation and development of courses of study and bulletins on method; (2) examination of textbooks; (3) demonstration teaching; (4) institutes and teachers' meetings for the improvement of instruction; (5) personal conferences for the interpretation of methods and curricula; (6) classroom visitation and inspection; (7) setting up standards of achievement.

This activity should include supervisors in charge of special departments or subjects as defined above who devote one half or more of their time to supervision.

In case a supervisor renders service as supervisor in more than one kind of school, prorate his salary, clerk hire, and other expenses among these types of schools according to the portion of his time given to each type.

Include traveling and other expenses allowed in attending conventions, institutes, etc., street-car fares, report blanks, stationery, etc., used by supervisors, expenses in connection with holding teachers' institutes, teachers' traveling and other expenses allowed in attending conventions, institutes, etc. All expenditures connected with Item 2a should be reported here.

2b. *Principals:* Include salaries and expenses of the principal and assistant principal and other administrative officers within the building only in case they devote half or more than half of their time to administration and supervision. All expenditures connected with Item 2b should be reported here.

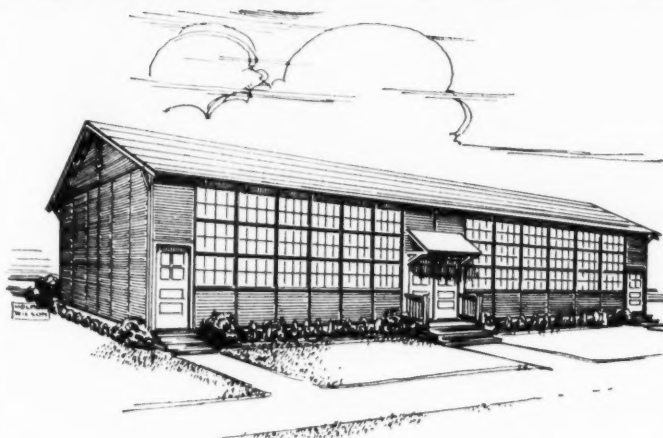
2c. *Teachers' salaries:* This is the amount paid teachers without deducting amounts that are paid into the pension fund for the teachers' part of the fund. Do not include amounts allowed teachers for institute expenses, as these should be included under supervision (item 2a). Include salaries of all persons who teach more than half time, whatever their official title. All expenditures connected with Item 2c should be included here.

2d. *Textbooks:* Include only payments for textbooks furnished free to pupils. Payments for

PORTABLE SCHOOLS

Economical

When you take into consideration the labor cost in the construction of permanent buildings, the finished price of our portable schools compares favorably in almost every section of the country with any type of school building and has better lighting and planning than the usual school building.



Time Saving

The time necessary to erect and complete our Portable Schools is so much less than the regular building schedule that your schools are ready for occupancy on short notice. We do the major construction work in the factory on a quantity basis, which lowers construction costs and delivers on time.

Fits Your Needs

One room, Two room, or multiple room units. Always just the size you need. Portable so that they can be moved from place to place with small additional cost. Well lighted and ventilated. Planned by expert school engineers. Less waste space than other types. Easily kept warm and comfortable in severe weather.

Fire Resisting Types

For slight additional cost we provide fire resisting buildings with roof of asbestos shingles and interior and exterior sidewalls of asbestos board. This construction has the approval of safety engineers and underwriters and in exposed locations these buildings save the children from the menace of fire hazards.

For Emergencies

Quick shifts in the population often call for quick facilities for additional rooms for the schools which demand action at once. Minter Portable Schools can be installed pending more permanent arrangements, amply providing the necessary additional facilities while more permanent buildings are in process of planning and construction.

MINTER HOMES CORPORATION

3rd Avenue at 4th Street

School Department

Huntington, West Va.

textbooks sold to the pupils during the school year should not be entered in this report, as the money so spent is still available for use.

2e. *Educational supplies*, school libraries, and other expenses of instruction: Supplies are those things which, when once used, are actually or constructively consumed, including writing paper, drawing paper, blank books, chalk, ink, pencils, pens, adhesives, fasteners, carbon paper, rubber stamps, typewriter supplies, magazines for classroom use, newspapers, test tubes, litmus paper, filter paper, polishing and abrading supplies, drugs, chemicals, cleansers, laboratory supplies, food supplies. Freight and cartage on supplies should be included. Care should be taken to exclude from educational supplies any article made of durable material which is supposed to last year after year with reasonable use. No permanent laboratory apparatus or equipment should be included.

Include the cost of supplementary books and also magazines, library books, etc., supplied to the school library when paid for out of school district funds. The cost of school library books for a new library should be reported under "Capital Outlay." The expenses of maintaining and operating public libraries to which all pupils or even the public may have access should be reported under "Auxiliary Agencies."

Include expenses in connection with commencement exercises or school entertainments, such as music, decorations, programs, diplomas, etc. Street-car fare of teachers, where allowed, should be included under this head. Expenses incident to teachers' institutes should be included under supervision.

3. *Operation of school plant.* a. Wages of janitors and other employees: Include salaries or pay of janitors, janitors' helpers, engineers, firemen, switchboard operators, matrons, watchmen, etc.

3b. *Fuel, water, light, power, janitors' supplies, and other expenses:* Include all expenditures for coal, wood, and other fuel, including freight, cartage, and other expenses incurred in securing same; charges for water used in buildings and on grounds; gas and electric current.

Janitors' supplies include articles which are consumed in using or are not expected to last from

year to year, such as brooms, mops, soap, dusters, floor oil, and other cleaning supplies; electric bulbs, paper cups, and toilet supplies; and other miscellaneous articles necessary for the operation of the school plant.

4. *Maintenance of school plant.* Under this head should be included all expenditures made for the restoration of any piece of property (grounds, buildings, or equipment) to its original condition of completeness or efficiency. This includes the repair of buildings and upkeep of grounds and repairs and replacement of old or worn-out equipment. Include cost of labor and materials incident to the repair of buildings, including painting and glazing, and to repair of plumbing, lighting, heating, and ventilating equipment. Do not include expenditures for improvement of grounds in the nature of permanent equipment, alteration of old buildings, such as tearing out walls, enlarging rooms, building of additions, putting in partitions, nor for additions to equipment, all of which should be included under "Capital Outlay."

5. *Auxiliary agencies and coordinate activities.* a. Public libraries under board of education: Report here salaries, cost of books, magazines, pamphlets, and operating expenses for maintaining free public libraries in case such libraries are maintained by the board of education. Do not include public libraries under the control of other public boards nor the libraries devoted exclusively to the service of any individual school.

5b. *Promotion of health:* In this section report salaries and expenses of all field workers in medical inspection, dental inspection, and nurse service. If necessary prorate such expenditures among types of schools on the basis of enrollment. The salaries and expenses of the directors of these various activities who supervise the field workers should be reported under "General Control."

5c. *Transportation of pupils:* Include all expenditures out of school funds for the transportation of pupils to and from school, including the purchase or hire, operation, and maintenance of vehicles, street-car fares, etc.

5d. *Enforcement of compulsory attendance:* In this section report salaries and expenses of all field

workers in compulsory attendance. If necessary, prorate such expenditures among types of schools on the basis of enrollment. The salaries and expenses of the directors of this activity who supervise the field workers should be reported under general control.

5e. *Other auxiliary agencies:* Include under this head all payments made by the public-school systems for the subsistence, care, and instruction of children in asylums and other special institutions and for the care and instruction of pupils in private schools; all payments made by the public-school systems in connection with providing free lunches to the undernourished and also any deficits incurred in maintaining the usual lunchrooms. Profits from such sources are to be reported under "all other revenue receipts." Include payments for recreation activities, including salaries and wages of supervisors, teachers, and attendants having to do with playgrounds and recreation centers, school athletics, track and field meets, field days, matched games, and all other exercises of a recreative nature not included as a part of the regular curriculum. Salaries and expenses of physical-training teachers giving instruction required of pupils should be reported under "Instruction."

6. *Fixed charges.* Include appropriations from school or general funds paid into the pension fund or pensions paid to retired employees from current funds. Do not include deductions for the pension fund from the teachers' salaries. These should be included in the teachers' salaries (Item 10c). Include rent paid for school buildings and equipment, insurance, premiums, contributions to educational or charitable associations, contingencies, and taxes.

7. *Capital outlays.* a. New grounds and buildings, alteration of old buildings: Include under this head payments for land, together with all cost of acquiring title, original grading, and improvements to the grounds: payments for new buildings, including architects' fees, advertising for contracts, payments on contracts for construction, installation of plumbing, lighting, heating and ventilation equipment, etc., tearing out walls, enlarging rooms, building of additions, putting in partitions, being careful not to include mere repairs.

(Concluded on Page 153)

HAMLIN

SOUND-PROOF DOORS

INSURE QUIET CLASSROOMS

IDEAL study and recitation require quiet classrooms. Hamlin sound-proof doors and partitions insure that necessary quiet—that freedom from noise and abstraction detrimental to concentration.

10 Reasons for Hamlin Sound-Proof Doors

1. Sound-proof—assure dead silence -- you can't hear out--others cannot listen in
2. Airtight because edge-tight
3. Heavily felt-filled
4. Furnished in any finish to match wood-work
5. Sound waves and vibrations cannot penetrate in or out
6. Keep out dust
7. Keep out odors
8. Keep out light
9. Keep out draft
10. Insure privacy, peace and quiet

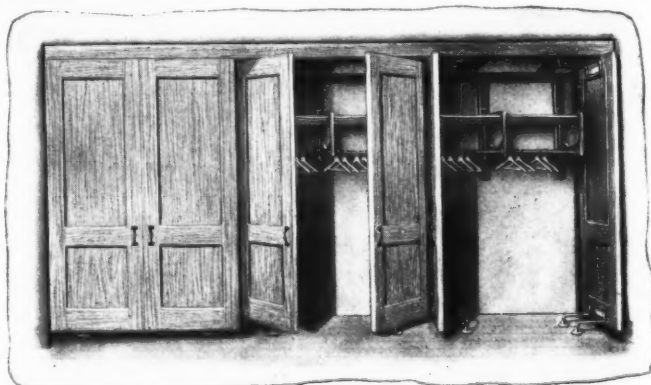
Architects the country over are specifying HAMLIN sound-proofed doors, for they know how highly school executives value the importance of quiet in their classrooms.

Hamlin Sound-Proof Doors are scientifically constructed for sound-deadening and are available in finishes to match any furnishings or woodwork.

Write for catalog of specifications and list of prominent school installations. Learn the modern method of insuring quiet classrooms.

HAMLIN
SOUND-PROOF DOORS
and folding partitions

IRVING HAMLIN
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EVANS "VANISHING DOOR" WARDROBE CLASS A-A, WITHOUT JAMBS OR TRIM

Here is an ideal school classroom wardrobe, low in cost yet meeting every demand of the most exacting. This wardrobe is made for plaster ends, backs and ceilings; no jambs nor trim being required. When so desired blackboards can be furnished for the doors, giving a continuous blackboard surface.

The "Vanishing Door" hinges on which the doors are hung are made with double pivoted arms and swing the doors back into the wardrobe entirely out of the way. There are no noisy tracks nor rollers to stick or bind, nor intricate mechanism to get out of order. These hinges are guaranteed to last as long as the building.

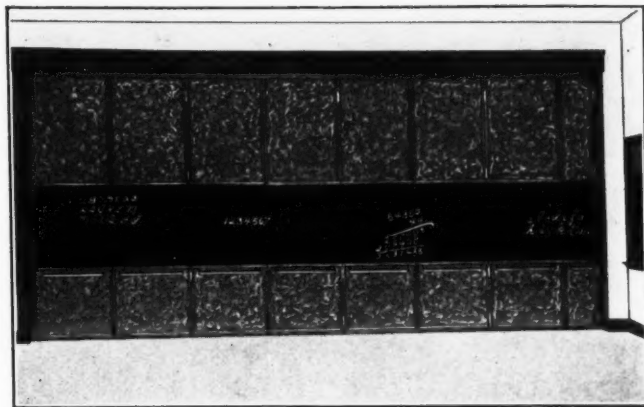
All wardrobes are furnished complete in the knockdown, with all woodwork cut to size, and only need to be nailed in place. The hinges are easier to put on than common butt hinges. The entire cost of installation is small.

Many types of school wardrobes are fully illustrated and described in Catalog "K." A copy can be had for the asking.

W. L. EVANS
WASHINGTON, INDIANA, U. S. A.

VANISHING DOOR WARDROBES

FOLDING PARTITIONS



WHY FOLDING PARTITIONS ?

So a school or similar building may be changed quickly to accommodate a large group of students or a number of smaller groups. So it may be changed without delay from several absolutely separate rooms to one big room or vice versa.

WHY THIS TREND ?

ECONOMY—of space—of time—of teachers—of property—of money. Horn Folding Partitions always work. They are sound-proof and use no floor tracks. Mechanically operated so any lady teacher can work them. Noiseless. Dependable.

WHY INSTALL ONE THIS SUMMER OR FALL ?

Divide the old gymnasium or auditorium. Divide that "too-big" classroom. Display your good business judgment. Provide maximum usable space at a minimum of cost.

WHY LET OUR ENGINEERS HELP SOLVE YOUR PROBLEMS?

It costs you nothing.
Send us sketches.
Ask us questions.
You will not be obligated.

HORN FOLDING PARTITION CO.
Fort Dodge, Iowa

Representatives in All Principal Cities

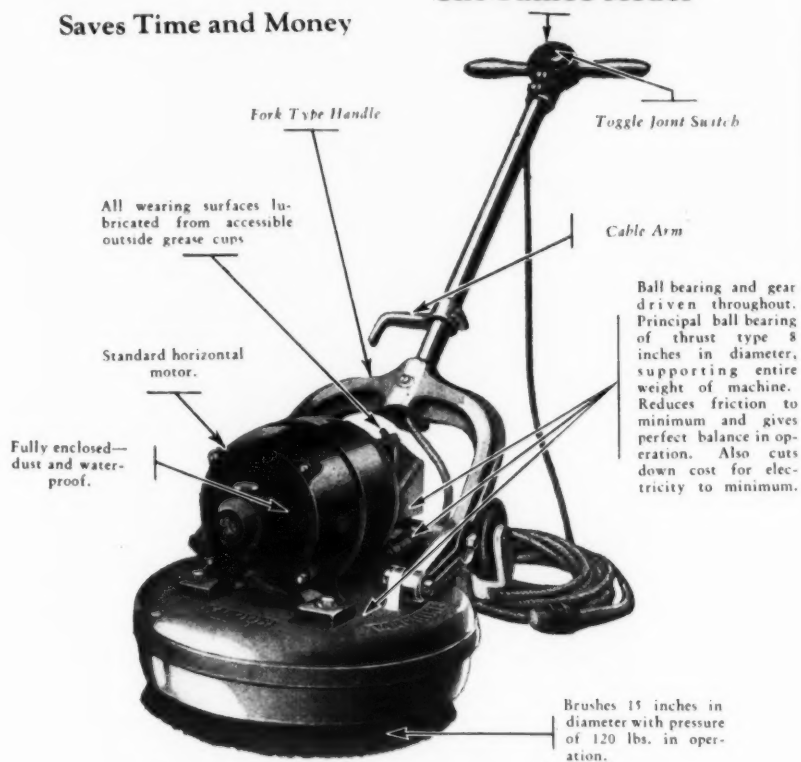
FAY Floor Machine

For Greater Efficiency

Scrubs ~ Waxes ~ Polishes ~ Sandpapers ~ Refinishes

The Jumbo Model

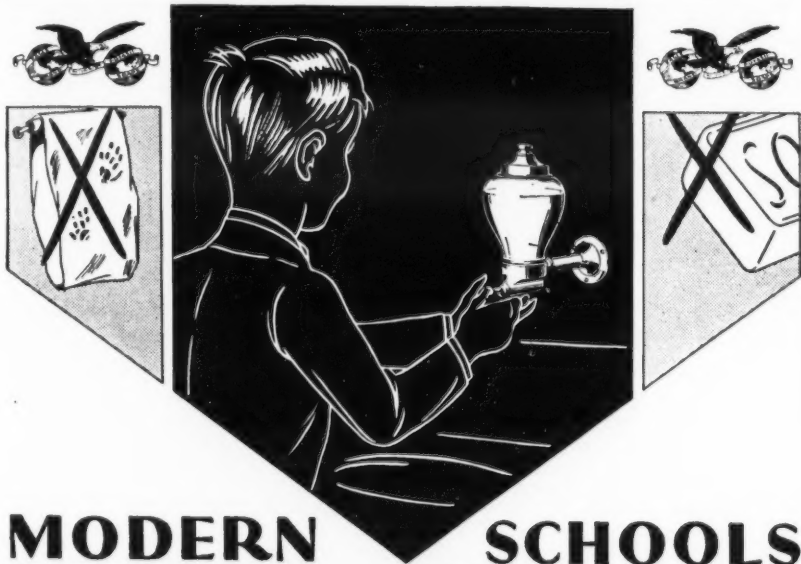
Saves Time and Money



Equipped with Direct or Alternating Current Motor.
To Operate From Any Light Socket.

We will be glad to demonstrate or send a machine on trial.

THE FAY COMPANY, 13 East 31st Street, New York, N. Y



MODERN SCHOOLS DEMAND THIS SAFE LIQUID SOAP

FALCON Liquid Toilet Soap is pure, soothing, quick lathering, highly concentrated and cleansing. Dispensers are furnished at cost. Banish the germ laden bar of soap, which transmits colds and respiratory diseases from one student to another, just as you long ago discarded the roller towel. Adopt the modern Falcon Liquid Soap . . . it touches no hands but the user's. Write for samples.

EAGLE SOAP CORPORATION
64 E. Jackson Blvd. Chicago, Ill.

FALCON

LIQUID TOILET SOAP



ARM-A-COTE

ARM-A-COTE immediately transforms dull and unsightly floors, giving them a beautiful wear-resisting surface.

Easily applied with a mop.
Spreads farther — Lasts longer.

Line up with the better schools—
Use ARM-A-COTE.

Write for complete information.

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MANUFACTURING
COMPANY
Sioux City,
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Be Prepared

Whether you need a new school building or relief from an overcrowded condition next fall—there is an Ambler Asbestos school house that will meet your requirements.

Designed to conform to all building codes, these roomy, fireproof asbestos buildings are substantial, durable and can be erected in a few days. And the cost is less than that of any other type of structure offering equal advantages.

Every educator will find our catalog a useful reference book. It will be sent to you on request.

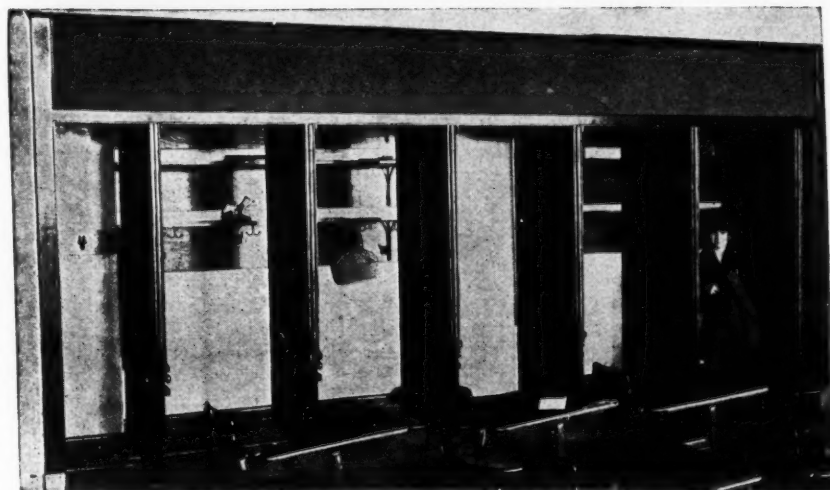
Asbestos Buildings Company
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Liberty Title and Trust Co. Bldg., Philadelphia, Pa.

AMBLER

FIREPROOF ASBESTOS
SCHOOLHOUSES

Ghosts that Haunt You



during
**Vacation
Days**

Improvements for your school that you know are needed . . . vitally, are the ghosts that walk with you all summer! And these ghosts are no less terrifying than the skull and cross bones variety.

Why wait until August to make your decisions on next year's equipment? Right now is the time to make up your mind that your school needs the Miller Wardrobe . . . to save heating expense . . . to supply ventilation . . . to protect against petty pilfering . . . to conserve space.

The Miller Wardrobe, patented on the single control multiple operation principle, can be built into any school . . . old or new. And the prices of installation are so reasonable they will surprise you. Write at once for the Miller catalog, W-7. It is filled with helpful information.

Lay those ghosts. Give your order for Miller School Wardrobes for every one of your classrooms. By this improvement alone, you go a long way toward modernizing the old building.

The K. M. Supply Company

123 West Eighth Street

KANSAS CITY, MISSOURI

(Concluded from Page 150)

7b. *New equipment:* Include purchase of all new equipment, except such as is provided to replace worn-out or destroyed similar equipment such as tables, desks, cupboards, filing cabinets, racks, stands, typewriting machines, adding machines, duplicating machines, and other labor-saving devices; electric fans, physical, chemical, biological, and other scientific laboratory and demonstration apparatus; machinery, tools, and other equipment for vocational instruction, domestic science, manual training, etc.

8. *Debt service.* Enter under this head all payments for interest on short-term loans, bonds, or warrants; all payments for retiring loans, bonds, and back warrants (except where money is borrowed and paid back during the same years). Include payments of refunds of taxes and tuitions from patrons. Payments from current funds, from sinking funds, and from the issue of new bonds to redeem old bonds should be kept separate.

Determining the Cost Per Pupil

In order that the cost per pupil for conducting the several classes of schools may be comparable, the same should be reduced to a common unit of measurement; namely, the pupil hour of 60 minutes.

After the cost of conducting schools has been ascertained, the next step is to determine the average expenditure per pupil, or, in other words, the cost per pupil. This is done by dividing the total cost by the number of pupils. The number of pupils may be (1) the total number enrolled, (2) the average number belonging, or (3) the average daily attendance. The last divisor is the most accurate, because there can be little room for different methods of calculating it. It also best expresses the service rendered for the expenditure incurred. Where the hours of instruction are not uniform, it is advisable to change the average daily attendance to the number of pupil hours. For forecasting future costs or for budget purposes the average number belonging is often most desirable as the total attendance likely will need to be provided with books, supplies, etc.

The cost per pupil obtained by the above processes is for all the schools in the system.

Another step is to obtain a cost per pupil for each type of school; namely, elementary schools, junior high schools, junior-senior high schools, senior high schools, teacher-training schools, vocational schools, continuation schools, evening schools, summer schools, and special schools.

The cost is as readily arrived at as the cost of all schools, provided the expenses have been recorded by types of schools as well as by type of expenditure, and if attendance figures are available.

A final step is to charge the expenditures to the individual schools for which they have been incurred. General expenditures not directly chargeable to a school must be prorated on as equitable and reasonable a basis as possible. Dividing the expenses for each school by the attendance for the school gives the cost per pupil in each school.

When the above processes have been carried out we have obtained the cost per pupil for the school system as a whole, the cost per pupil in each type of school, and the cost per pupil in each school.

BOARDS OF EDUCATION

♦ Lawrence, Mass. The city solicitor, in a recent opinion given to the school board, has ruled that the board may not expend school funds for the purpose of insuring shop students against accidents. The board had requested a ruling from the attorney as to the legality of expending school money for that purpose.

♦ Vanderbilt, Pa. The school board has reduced the length of the school term from nine to eight months in order to reduce the expenses of the school system.

♦ Philadelphia, Pa. At a recent meeting of the school board, Supt. E. C. Broome withdrew his recommendation that the Philadelphia High School for Girls be merged with the Penn High School. The action ends a long fight of alumnae and educators to preserve this school as the only strictly academic high school in the city. Dr. Broome pointed out that the proposed plan was the result of a study of the problem and represented the unanimous thought of the department of superintendence.

♦ Tiffin, Ohio. The school board has decided not to rescind its agreement to a charge \$50 per night for the use of the junior-high-school auditorium.

♦ Rock Island, Ill. The voters at a special election have retained by a majority of 3,993, the special school charter granted the school district in 1857. By retaining the present system, the schools retain the benefits accruing from it.

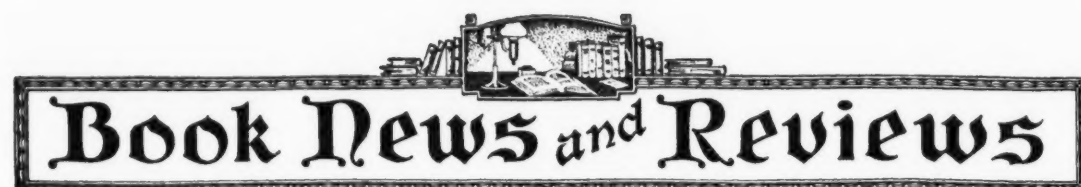
♦ Wilkes-Barre, Pa. Upon the recommendation of Supt. H. H. Zeiser, the school board has voted to discontinue holding school picnics during the final week of the school term. Mr. Zeiser pointed out that the attendance has decreased, while the number of accidents has increased.

♦ Detroit, Mich. Following a report of Gordon Graham, safety engineer, the school board has voted to begin alterations to a number of the schools to remedy the fire hazards called to their attention. The board has passed a rule, limiting the capacity of crowds in twelve gymnasiums and auditoriums.

♦ Chicago, Ill. Window breaking, malicious and accidental, costs the board of education an average of \$175,000 each year, according to a recent survey made by Ernest Withall, business manager for the board. Mr. Withall pointed out that more than \$5,000 was spent in Southtown alone during the month of April, in replacing broken window panes. At the Belae School, there were 38 panes broken during a single month, of which 36 were found to be due to vandalism. The number of broken panes is far below last year and in many cases the boys responsible have admitted their guilt.

♦ Highland Park, Ill. The board of education of Dist. No. 108 has introduced a classified budget system. Under the new system, every expense for the year is cataloged, the amount of the appropriation for each branch of the schools is set aside in a bookkeeping fund, and expenses are kept within the amount set aside for the purpose.

♦ New Haven, Conn. The school board has adopted a redistricting program, involving nearly every section of the city, which is likely to result in the transfer of about 250 students.



Book News and Reviews

American History

By Thomas M. Marshall. Cloth, 747 pages, illustrated. Price, \$1.60. The Macmillan Co., New York, N. Y.

The fault with a great many history textbooks used in our schools today is that they present to the student a mass of incidents which show no central unity, and consequently the student loses the general picture of the story. In the *American History* of Mr. Marshall one notices a splendid departure from the conventional form. In the first place, the facts are presented in a spirit of fair-mindedness. There is no gushing of patriotic valor, but rather a fascinating web of events written from a detached point of view.

Beginning with a chapter on the story of the white man from the dawn of history, the advance of civilization is traced step by step through the ages. With this background the student is well equipped to sense the significance of the discovery of America. The nation's history is divided into ten general topics, each of which are subdivided into several chapters. The general topics present the various phases of the story from the political, economic, social, and cultural point of view. In the treatment of each phase of the subject the reader is mindful of its bearing on the general story.

The text lends itself agreeably to the classic sources of literature and art from the Bible and Homer through the romance of the Middle Ages to Longfellow, Irving, and Mark Twain. Each chapter is supplemented with a series of factual and thought questions which help the student generalize from the facts to see new relationships. Following the thought questions are references to interesting biographies and studies to the topics mentioned in the chapter, which are well suited to the students interest. Besides the pronunciation of the different names has been indicated. Particularly interesting are the copious illustrations with maps and pictures which make graphic the point discussed on the page. For example, the Articles of Confederation are pictured as the clothes without the man.

Mes Premieres Lectures

By Louis J. A. Mercier. Cloth, 248 pages. Price, \$1.20. Silver, Burdett & Company, New York, N. Y.

This first French reader takes on the form of a class diary in which are recorded happenings that occur to all boys and girls in school and at home. There are delightfully human selections about school games, holidays, home life, radio, and other very modern matters. The reference to overeating at Thanksgiving is the only jarring detail in the entire book.

The real strength of the "oral self-expression method" shows to excellent advantage in the book. The free use of material which has been studied, analyzed, and automatized cannot fail to develop language mastery. Vocabularies are well chosen and tests are of the modern type.

Eighth-Year Mathematics

By Ernest R. Breslich. Cloth, 296 pages, illustrated. Price, \$1.12. The Macmillan Co., New York, N. Y.

This volume is a sequel to *Seventh-Year Mathematics*. Its main objectives include the development of the pupil's skill in solving everyday numerical problems, and acquaintance with common business practices, investments, taxes, and insurance. It also recognizes the worth of problems involving geometric forms and figures to give the student a special imagination and help him analyze geometric situations.

Women Pioneers

By Jane Y. McCallum. Cloth, octavo, 234 pages. Johnson Publishing Co., Richmond, Va.

Alongside the names of our national heroes, should be inscribed the names of those noble women who left their mark upon their times, and from whose lives the world has gained a little more of beauty.

The author has selected fourteen great American women, each a pioneer in some particular field. She treats their lives briefly, but in a pleasant and

interesting manner. The range of time included in the accounts proves that the spirit of Anne Hutchinson is still strong in her sisters of today.

The book is a piece of strong evidence for the truth of the saying "The hand that rocks the cradle, rules the world."

How to Write a Thesis

By Ward G. Reeder. Cloth, 226 pages. The Public School Publishing Company, Bloomington, Ill.

If the practical directions given in this manual were thoroughly digested by all students who write theses, the lives of professors would be sweeter, the college careers of the individual writers would be vastly more successful, and the theses themselves would be what they are intended to be—scientific contributions to the useful knowledge of the world based upon the objective evidence revealed by research. The reader who follows the directions given cannot fail in the mechanics of producing an acceptable thesis. A few entries in the bibliography may be questioned as to value.

Glimpses Into the World of Science

Edited by Mary G. Phillips and Wm. H. Geisler. Cloth, 344 pages. Published by D. C. Heath and Co., Boston, Mass.

Delightful glimpses are these extracts from recent and older writers who have contributed to the world's treasury of knowledge by their observations and discoveries. A book like this is not only good literature, but a strong means of teaching children the scientific attitude in all matters. It is a pity that the book should begin with an unscientific account of the life of Galileo—one that meets the popular notions of this man's struggles, that is, however, open to so many criticisms of historic accuracy that it deserves no place in a science book.

Junior High School Poetry

By John A. O'Keefe, A.M., and Frederick A. Guindon, B.S.Ed. Cloth, 386 pages. D. C. Heath and Co., New York, N. Y.

Divided into three sections for each grade of the junior high school, this book includes a carefully selected list of lyric, narrative, and patriotic poems from recommended authors.

Heroes of the Farthest North and Farthest South

By J. Kennedy Maclean and Chelsea Fraser. Cloth bound, 472 pages. Published by Thomas Y. Crowell Company, New York City.

This book made its original appearance in 1923 when it dealt with the heroes who had conquered the North Pole. With the remarkable exploits of Commander Byrd in the Antarctic, the whole subject dealing with the poles assumes a wider scope.

The book therefore not only concerns itself with the several thrilling expeditions to the North Pole, but also tells of the expeditions to the South Pole

THE VALUE OF RESEARCH

The traditional method in handling problems of personal adjustment has been to wait until a bad situation forced itself on one's attention and then to begin casting about for a remedy. Children were brought up according to tradition. The doctor was consulted only when they were sick, and they were disciplined only when naughty. Much of the work in school, notably in English, has been devoted to the correction of bad habits previously acquired.

With the advent of the scientific method in educational procedure, techniques have been developed whereby approaching crises may be forestalled by early diagnosis. Foresight is better than hindsight and in the long run is more economical. The survey method has been used extensively in the achievement side of schoolwork, and teachers are now able to take frequent stock of educational progress and make needed readjustments.—C. E. Jackson, Teachers College, Columbia University.

engaged in by Captain Scott, Shackleton and Commander Byrd.

Thus the entire story of polar achievements is told beginning with the earliest attempts to fathom the unknown to the most recent achievements. The authors tell of the fate of Henry Hudson, of Franklin and his travels, of Dr. Kane and his adventures, the Jeannette expedition, Lieutenant Peary's achievement, and the Greeley expedition. The activities of Stefanson, Amundsen, Nansen, Macmillan, etc., are described.

Abraham Lincoln

By Ross F. Lockridge. Cloth, 320 pages, illustrated. Price, \$1.40. Published by World Book Company, Yonkers-on-Hudson, N. Y.

Another book on Abraham Lincoln! Well, let us see whether it is worth while. The author has planned his book along definite lines. He emphasizes the human side of the historic Lincoln, digs out some new anecdotes, and quotes frequently from his writings. The author assumes that Lincoln is his own best biographer. Extracts from his letters, speeches, miscellaneous writing and official documents provide a perfect autobiography.

Mr. Lockridge has performed his task well. The book is well conceived and well written.

Algebra for Junior and Senior High Schools

By J. W. Calhoun, E. V. White, and T. McN. Simpson, Jr. Cloth, 485 pages. The Johnson Publishing Co., Richmond, Va.

Algebra in this simple, easy treatment will show the student of either junior- or senior-high-school years, a practical application of the subject to everyday problems. The book contains all the materials for a standard two-year course.

Campus Standards for Country Day and Boarding School

By George D. Strayer, N. L. Engelhardt, and Thomas Burton. Paper, 50 pages. Published by the Bureau of Publications, Teachers College, Columbia University, New York City.

The country day school is interesting evidence of the growth of wealth in the United States and of the desire for social distinction. It is in another sense, an expression of the desire for a well-balanced education which the public schools at present are not offering, because they are unable to include in their aims and educational philosophy the full life of man, including his religious, civic, social, occupational, and recreational interests. The country day school is not a snobbish expression of social climbing, or of social exclusiveness, but a real attempt to provide that kind of education in ideal surroundings which will serve the best interests—mental, physical and spiritual—of boys and girls and insure their preparation for a well-rounded life.

The present publication is a study of the campus needs of country day and boarding schools. It applies to these institutions the well-known Strayer-Engelhardt technique of scoring school sites on the basis of definite standards of location, terrain, utilization of approaches and enclosures, location and availability of service systems and future extension plans.

There is evidence that the authors have intimately studied the advantages, as well as the shortcomings, of a large number of country day schools, and have added to their own personal observations the opinions of a large number of administrative officers of this type of institutions. The statement of standards is exceedingly moderate in its basic requirement, and where it does not touch upon well-established and commonly accepted practice shows a keen sense of understanding, both of the factors of educational utility and of economy. It is to be noted that the authors constantly emphasize good taste and moderation in every phase of campus layout and equipment. The book is a real contribution.

Creative Dramatics

For Upper Grades and Junior High School. By Winifred Ward. Cloth, 304 pages. Price, \$2.25. D. Appleton and Co., New York.

Of late years, due recognition is being given to the importance of dramatics in the curriculum. This book treats every phase of creative dramatics, from the dramatization itself to the stage work. It contains a wealth of suggestions for making dramatics a real factor in education.

Business Communication

By Carl Lewis Altmaier. Cloth, 496 pages, illustrated. Price, \$1.80. The Macmillan Company, New York, N. Y.

(Continued on Page 156)



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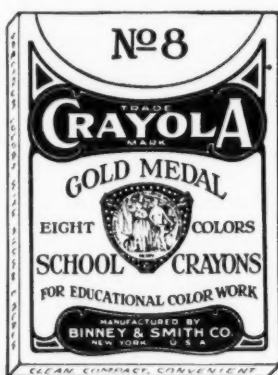
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Take Geography, for instance—different countries and different people, how they live, how they are clothed, what food they eat, etc. This can be firmly impressed on the pupil's mind by means of the sand table, dressing paper dolls, making small models of houses, or large posters to which each child in the room contributes his share.

Take Literature—have the children illustrate familiar poems and stories and make a frieze for the room of heavy cardboard, with cut-out figures representing different incidents in the stories.

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(Continued from Page 154)

A definite, practical method of instilling in the high-school or college student the meaning and value of a business letter. Instead of quibbling about "character, approach, personality" as too many of the modern texts do, *Business Communication* introduces the student to customs of business communication. It unfolds, with an imaginative appeal, the significance of successful business practice and gives the student that sense of discernment so needed today in establishing fruitful business contacts. In subordinating the form of letter writing to the value of sound business sense, the author has motivated the subject enough to allow the teacher to pass over the mere detail and to present practical business problems for further study. To this end, the problems at the end of each chapter permit the student to reconstruct the principles discussed and apply them to practical situations.

A Short History of Mathematics

By Vera Sanford. Cloth, 402 pages. Price, \$3.25. Houghton Mifflin Company, New York, N. Y.

The purpose of this work is to supply the teacher in training with some knowledge of what the world has done to bring the subject of mathematics up to its present perfection. In tracing the history, the author has shown the gradual evolution of the number system of its theory and application from its ancient beginnings to the present day. Sketches of the lives of mathematicians reveal how they groped and studied to develop new principles and how they used the new-found ideas as aids in other sciences, particularly astronomy and physics. The opinions and fears of the ancient peoples who considered mathematics as a system of magic are interesting to the teacher in introducing various principles in advanced arithmetic and algebra, and theorems in geometry.

The famous mathematical problems are presented. One smiles at the absurdities which baffled the famous philosophers as he courses through their difficulties in the intellectual regions of the science. But one realizes as he reads further that all of them were in some way responsible for the discoveries

that the mind of man has made in all of the sciences. In a few places, the author has marred her pages by rather unhistoric and unrelated matter, in which she reveals personal feeling in nonmathematical matters relating to medieval civic and religious life.

Eighth-Year Mathematics

By Ernest R. Breslich. Cloth, 296 pages. Price, \$1.12. The Macmillan Company, New York, N. Y.

This textbook, which originally appeared in 1924, has been revised to meet especially the purposes and aims of the junior high school. In addition to taking up the practical problems of business arithmetic and measurement usually offered in the eighth grade, it goes extensively into the problems of measurement and the solution of problems by formulas. It thus affords a practical and simple approach to the study of algebra and geometry.

Progressive Business Arithmetic

By William L. Schaaf. Cloth, 440 pages. List price, \$1.44. Published by D. C. Heath and Company, Boston, Mass.

This book provides a year's course in business arithmetic. It is intended, as explained by the preface, for use in junior high schools, business schools, vocational schools, and institutions offering an introductory course in business mathematics or commercial arithmetic.

The author bases his text on actual commercial practice and digs into the various transactions engaged in by the business world. In doing so, he covers every essential phase of trade and commerce involving the use of figures.

He leads the student from fundamental processes to fractions and percentages, from measurements to graphs, and the various business considerations. The problems arising out of transportation costs, wages, insurance, taxes, depreciation, advertising—all come in for such attention as will enable the student to learn the arithmetical side of things. The subjects of interest and banking, the care of money, and the more strictly financial phases of a business enterprise, are well presented. On the whole, it is a comprehensive, well-planned, well-executed work on business mathematics.

Marketing and Housework Manual

By S. Agnes Donham. Cloth, 250 pages. Price, \$2 net. Published by Little, Brown and Company, Boston, Mass.

Here is a useful book. It brings order and system into the management of a household. The planning, purchasing and utilization of the food supplies deserve thoughtful attention. And why not? Hasty and ill-considered purchases make for waste. What's more, they make for embarrassments and discomforts.

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Commercial Arithmetic

By Warren L. Starkey. Paper cover, 179 pages. Price, 68 cents. Published by Globe Book Company, New York City.


Here we have a small, compact, and reasonably complete arithmetic text. The author, who is himself an experienced instructor, has prepared the book with a view of meeting the requirements of secondary schools and technical business schools.

The student is familiarized with business transactions and the arithmetic which here ordinarily comes into play. Billing and invoicing, payrolls, trade and cash discount, taxes, marking goods, investments, partnerships, stocks and bonds, profit sharing and the like are well treated.

M. O. S. Book One

By C. H. Ward. Paper, 236 pages. Price, 60 cents. Scott, Foresman & Company, Chicago, Ill.

This book provides a complete review and practice material for developing grammar skill in high-school freshmen. The book affords a rich collection of practice material of the most interesting type so that the student who claims he has forgotten grammar cannot fail to recall principles and idioms and rules in an effective way.



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General Mechanical Drawing

By R. A. McGee and W. W. Sturtevant. Cloth, 208 pages. Price \$1.48. The Bruce Publishing Company, Milwaukee, Wis.

As the objectives and the teaching methods of the junior high school are being developed, new textbooks especially fitted to the needs and the opportunities of the junior-high-school group are being developed. The present text has been worked out to meet especially those exploratory, informational, and skill-development objectives which mechanical drawing in the junior high school must provide. As a text, the book covers the broad field of mechanical, instrumental, and pictorial drawing, with especial reference to the simpler applications of drawing to machine-shop practice, sheet-metal work, structural-steel design, furniture making, house planning, map drawing, electrical drafting, and the drawing of statistical charts, graphs, and diagrams.

The book is not organized in the conventional textbook style, but is divided into lesson units in which information, sources of study, and practical problems are carefully combined. The problems frankly accept the fact that boys in mechanical-drawing classes are quick, average, or fast, and that, to keep the class together, it is desirable to provide problems on at least three levels.

The vocational guidance function of the subject has been carefully emphasized both in the informational parts of the text as well as in the drawing activities themselves. Careful recognition seems to have been given to the fact that junior schools are found in a wide variety of situations in communities where the industries range from farming to machine building.

The book is well illustrated to arouse and to hold the interest. Diagnostical tests are introduced at the end of the various units so that the teacher may check her classes as each unit is completed.

Applied Business Arithmetic

By C. E. Steele and G. W. Muench. Paper pad, 128 pages. Price, 80 cents. World Book Company, Yonkers, N. Y.

The forty unit lessons here provided have been arranged (a) to cover typical actual business transactions which the individual is likely to encounter in personal as well as occupational life; (b) to include the common business forms and blanks; (c) to familiarize the student with the manner and form in which business problems are presented and in which their solution must be returned. The teacher will appreciate the complete information provided in the introduction to the lessons as well as the amount of drill in computation which the work involves.

Latin — Two Years

By C. R. Jeffords. Paper, 156 pages. Price, 67 cents. Globe Book Company, New York, N. Y.

This condensed text is intended mainly for reference, drill, and review purposes. The vocabulary is quite full.

Remedial Lessons in Spelling

By Norman H. Hall. Paper, 96 pages. Price, 16 cents. Hall and McCreary, Chicago, Ill.

High-school teachers of English will find this series of remedial lessons of value in review work. The vocabulary includes 3,600 words.

PUBLICATIONS RECEIVED

Boys' Clubs — A National Movement. Published by the Boys' Club Federation of America, 630 Graybar Building, New York City. The stories of the purposes, activities, and results of boys' clubs is told in pictures and in descriptive paragraphs.

List of Inspected Automotive Appliances, for April, 1930. Issued by the National Board of Fire Underwriters, New York, Chicago. The list covers only those appliances and systems which have been inspected with respect to one or more of the ratings defined below and have been found suitable for use on automotive vehicles.

List of Inspected Electrical Appliances, for April, 1930. Issued by the National Board of Fire Underwriters, New York, Chicago. A list of appliances inspected for accident hazard and of appliances and materials investigated as to both fire and accident hazards.

Analysis and Tabular Summary of State Laws Relating to Children's Cases. By Freda R. Lyman. Children's Bureau, U. S. Department of Labor, Washington, D. C. The pamphlet is an analysis and tabular summary of state laws relating to jurisdiction in children's cases. The material is presented in the form of a chart and a brief analysis and is only a part of the large amount of material gathered in connection with the study. The summaries furnish basic material for studies of court systems in various communities.

A Uniform Marking System for the Colleges of Pennsylvania. Prepared by John D. Brooks, chairman of the college committee, Chambersburg, Pa. The report represents the results of a study of markings in 160 colleges and universities of the country. One hundred and thirty replies were received in response to the questionnaire. It was shown that 103 institutions, or over 80 per cent, use the first five, six, or seven letters of the alphabet as signs in their system of marking, and practically all of these use a five-letter system. Ninety-four per cent of the institutions using the five-point grading system represent their passing grades by the letters A, B, C, and D. The most frequent change noted is from the percentage system to the five-point method of grading. Eleven institutions use seven-point scales, and four use a four-point system. It was revealed that objective tests are being used increasingly in the majority of the colleges, although only six require their use.

Progress in Seating Service. The Clarin Mfg. Company, of Chicago, Ill., has issued an interesting pamphlet entitled, "Progress in Seating," in which the development of seating is traced from the early Egyptian and Greek, down to the present-day state of refinement.

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The pamphlet lists and describes in considerable detail, the various types of Clarin folding chairs for classroom and auditorium use. These chairs come in a variety of designs and color and are designed to encourage good sitting posture. They are silent in operation, practically indestructible, easily handled, and present a fine appearance.

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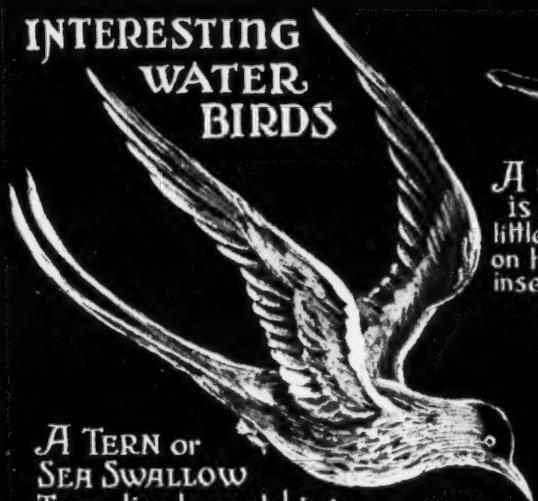
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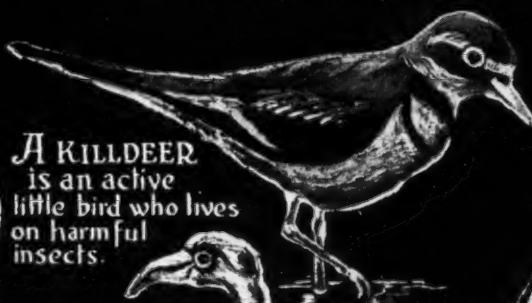
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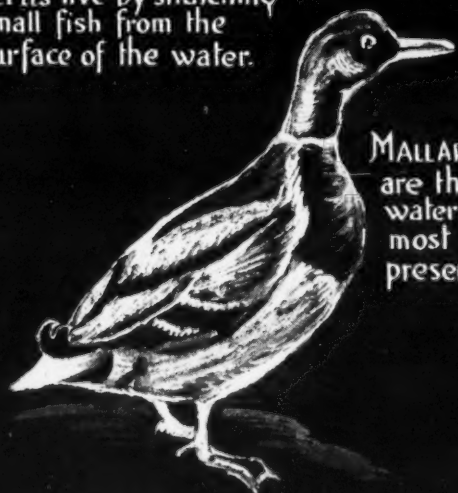
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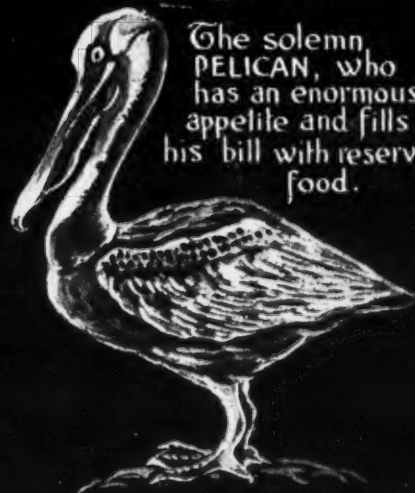
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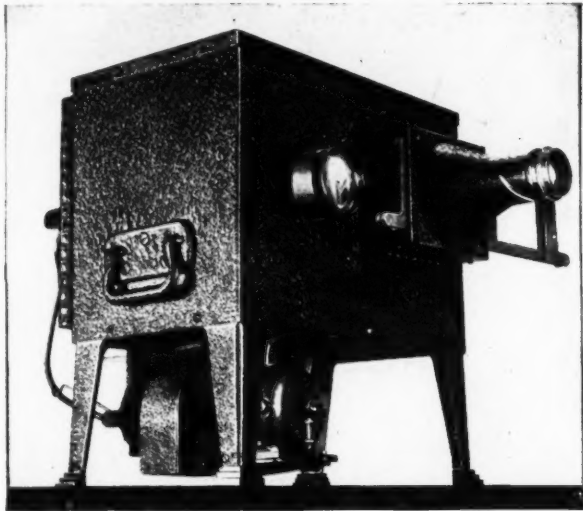
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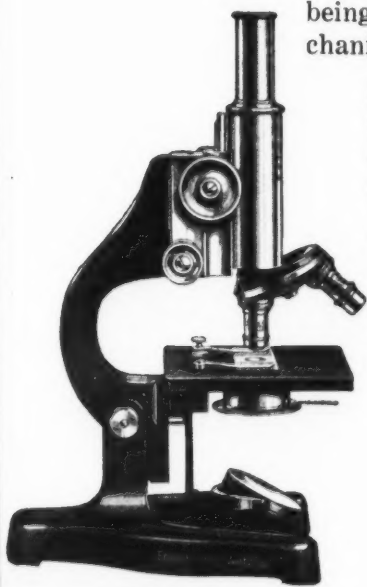
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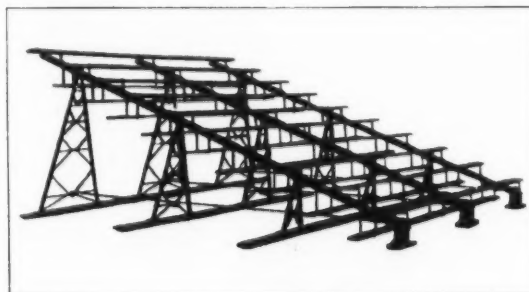
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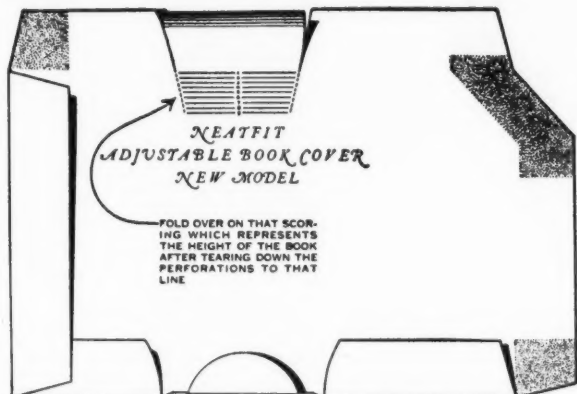
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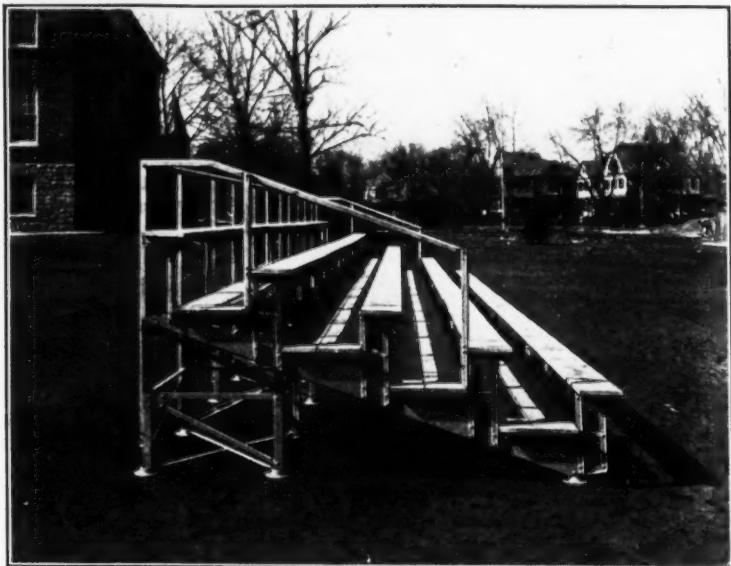
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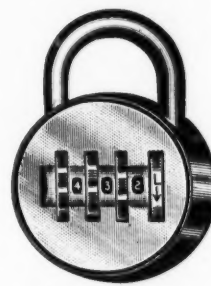
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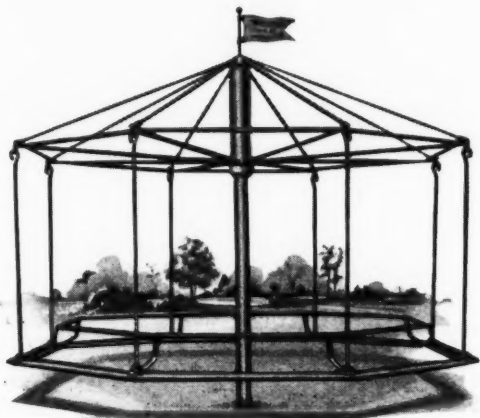
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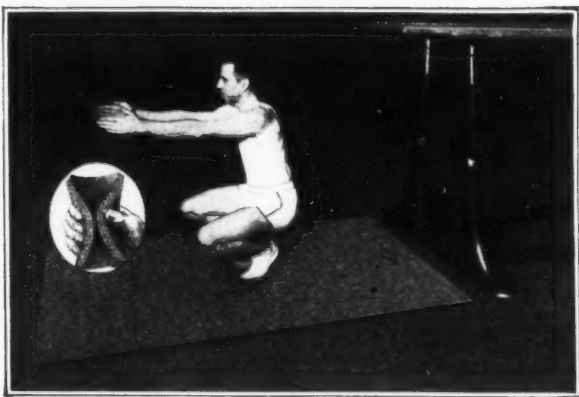
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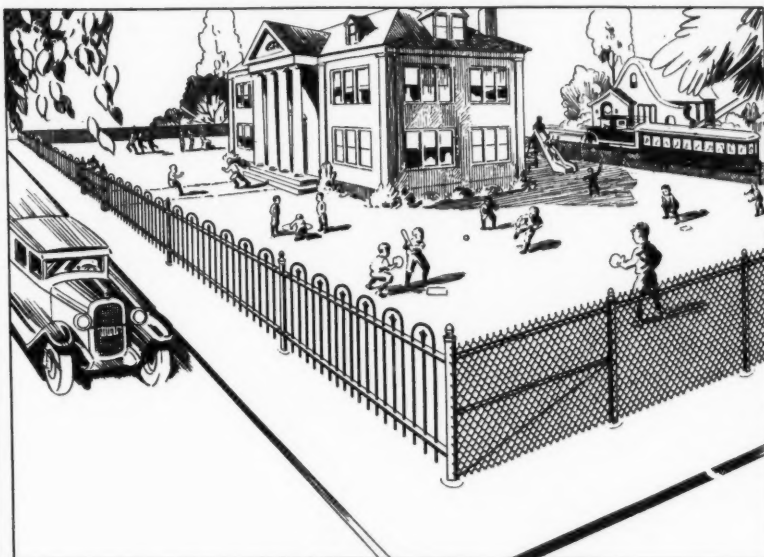
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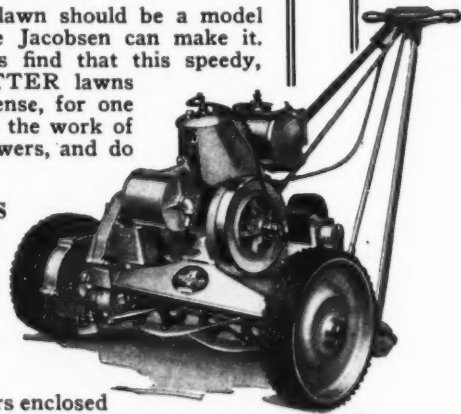
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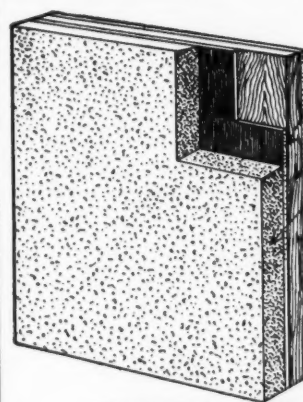
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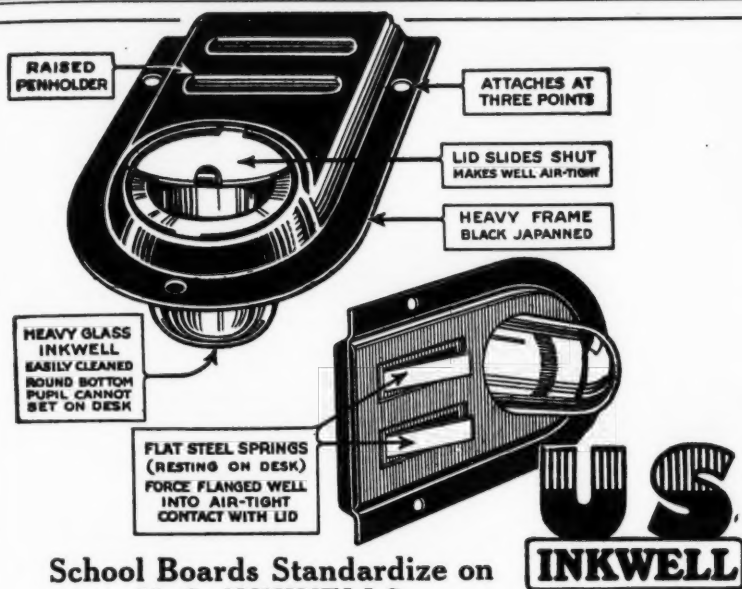
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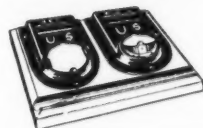
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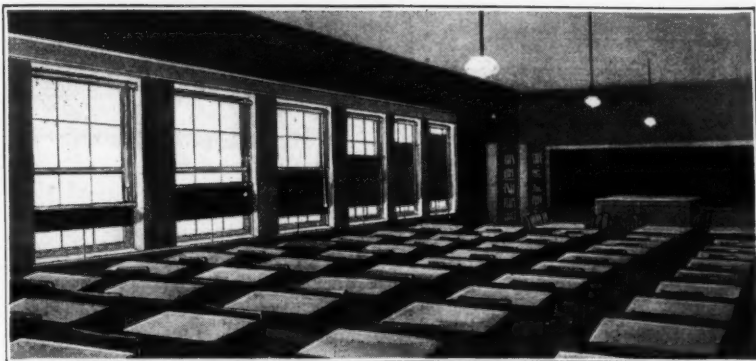


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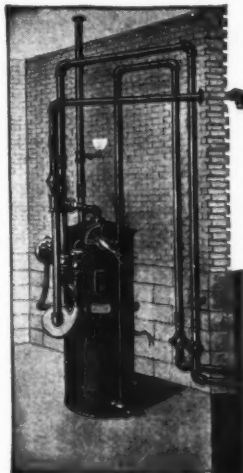
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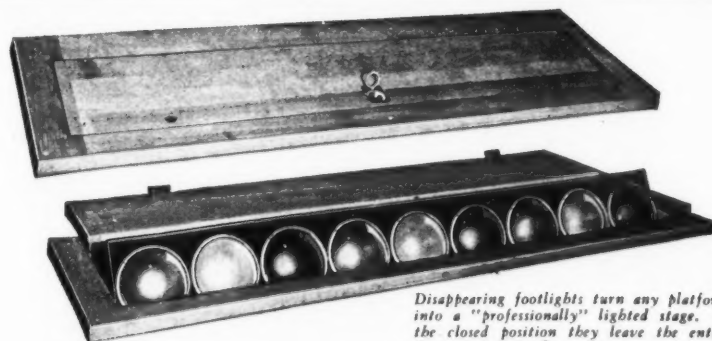
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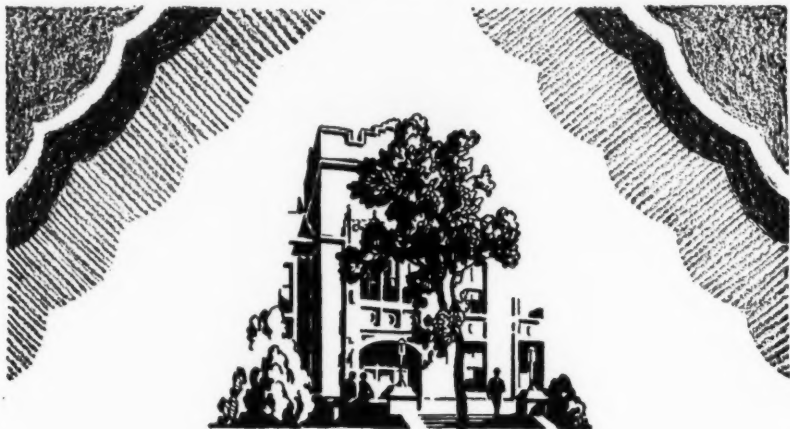
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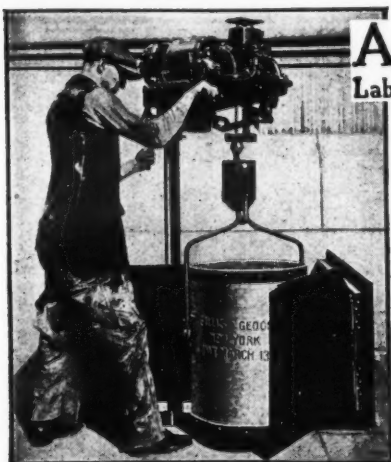
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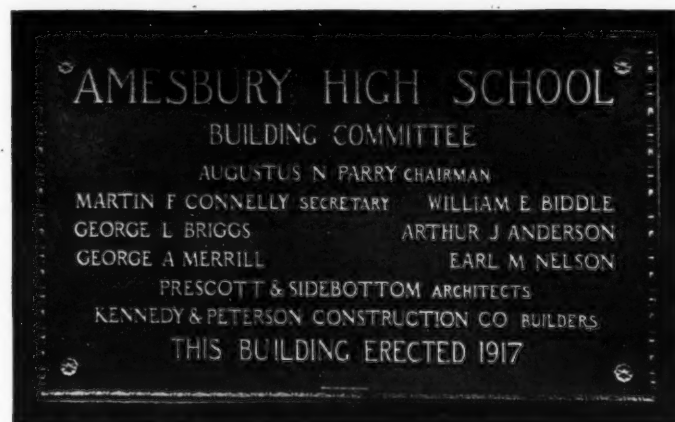
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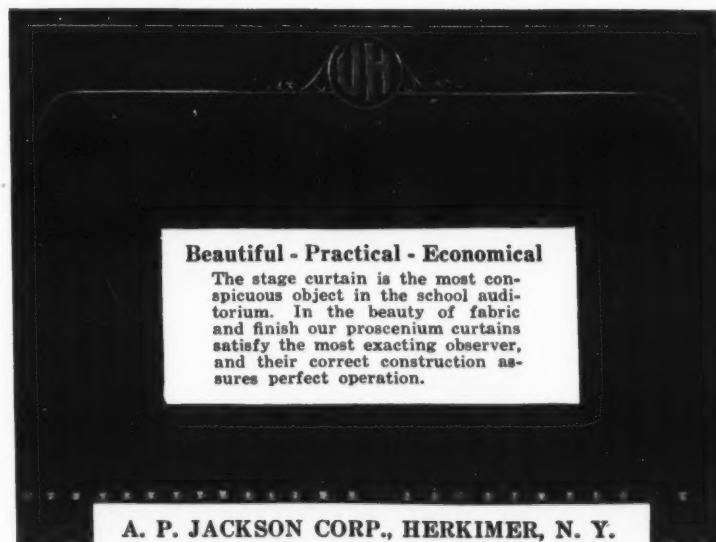
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Buckeye Blower Company
Nelson Corporation, The Herman
Peerless Unit Ventilation Co., Inc.
Sturtevant Co., B. F.

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Sturtevant Company, B. F.

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Samson Electric Co.

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Samson Electric Co.

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(See Schoolhouse Architects' Directory)

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Gillis & Geoghegan

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Mahoney Chair Company
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Kewanee Boiler Company

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Remington-Rand Business Service, Inc.
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Gregg Publishing Company
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Merriam Co., G. & C.
Union Library Association, The
Winston Co., The John C.

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Russell & Sons Co., Albert

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Midland Chemical Laboratories
Milwaukee Dustless Brush Co.

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BUSES

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Durabilt Steel Locker Co.

CABINETS (WARDROBE) (STEEL)

Durabilt Steel Locker Co.

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Pick-Barth Co., Inc., Albert

Sani Products Co., The

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Van Hecke Co., John
Welch Mfg. Co., W. M.

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Flanagan Company, A.
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Peabody Seating Co.
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Stakmore Company

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Wark-Reason Steel Furniture Co.
Welch Mfg. Co., W. M.

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Rowles Co., E. W. A.
Weber Costello Company
Welch Mfg. Co., W. M.

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Weber Costello Co.

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Hillyard Chemical Company
Midland Chemical Laboratories
Oakite Products, Inc.

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Murphy-Davis Signal Co.
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Weber Costello Company

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Dudley Lock Corporation, The
Greene Tweed Corp.
Miller Keyless Lock Co., J. B.

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Concrete Marble Company

CORK TILE AND CORK CARPET

Congoleum-Nairn, Inc.

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Van Range Co., John

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Binney & Smith Co.
Flanagan Company, A.
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Rowles Co., E. W. A.
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Sheldon & Co., E. H.
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Van Range Co., John
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Kewanee Mfg. Company
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Welch Mfg. Co., W. M.

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(Continued from Page 170)

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Narragansett Machine Company
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Wayne Iron Works

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Centrifugal, Sump
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Radio-Victor Corporation of America
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American Abrasive Metals Co.
SANDERS
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Clarke Sanding Machine Company
Hild Floor Machine Co.
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Truscon Steel Company
SASH, VENTILATING
Detroit Steel Products Company
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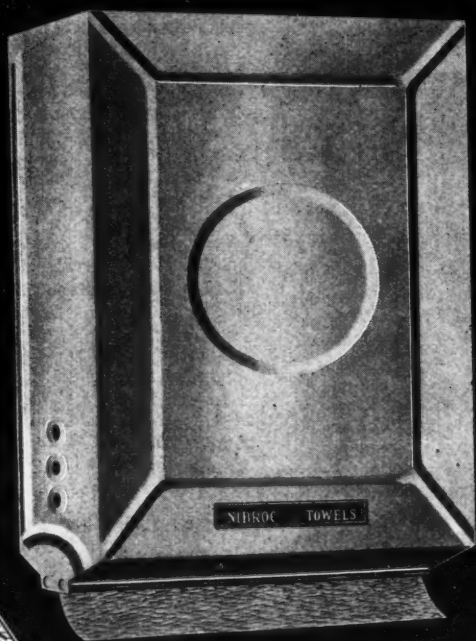
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Guardians
of health
Exponents
of economy

NIBROC TOWELS

THE very finest and most economical paper towels you can obtain—they exceed all expectations! Their outstanding emollient and antiseptic qualities, together with their great strength and absorption will convince you. **NIBROCS** are made only from long, pure spruce fibres, in *brilliant white* and *golden brown*. One single NIBROC will thoroughly dry the wettest hands without falling to pieces. **In** school washrooms, NIBROCS are a necessary factor in maintaining wholesome conditions. They encourage children to wash their hands more often and eliminate the spreading of infectious diseases found on common cloth or roller towels. **NIBROCS** are lintless, and are served clean and fresh, individually from dust-proof, key-locked, enameled cabinets, which are loaned without charge. Write for generous supply of NIBROCS today.



FOUNDED 1852

Portland, Maine

After the Meeting



Well Expressed

Prof: "What people are scattered all over the earth?"

Class (in chorus): "Pedestrians." — Virginia Reel.

Also a Few Collectors at the Door

Teacher: "Johnny, if your father could save one dollar a week for four weeks, what would he have?"

Modern Child: (promptly): "A radio, an electric refrigerator, a new suit, and a lot more furniture." — The New Outlook.

Embryonic Bond Salesmen

"Old college ties, gentlemen," orated the old grad from the platform, "old college ties — the lasting loyal love for our alma mater, and her love for us. Where, fellow alumni, where, I ask you, can you find a greater, better, worthier, nobler, finer, stronger bond — a bond which will repay you more?"

"Ya-a-a-ay!" shouted the entire class of '30, rising to their feet. "A customer!"

And the old grad was utterly destroyed in the rush. — Life.

High Hat

Fond Mother [to boy whose school has been visited by royalty]. And wot did yer say to the prince?

Boy: Nothink!

Mother: Bah! Your blinkin' pride will be the ruin of you one day.

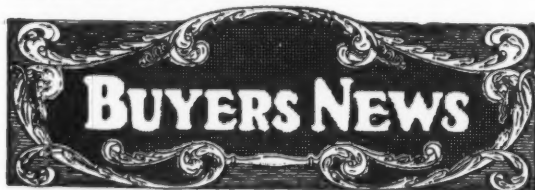


A Waste

Discouraged Jim: "Mother, I will not try for the conduct prize. Some other fellow always gets it."

Mother: "Don't give up; try, try again."

Jim: "I'm through, Mumsy; it's a clean waste of goodness to go on."



NEW CATALOGS

Steel Furniture Catalog. The Steel Furniture Co., of Grand Rapids, Mich., has issued its new Catalog No. 130 on theater seating. While the catalog is primarily a theater-chair catalog, it includes the more popular chairs in common use in school auditoriums. These chairs are unbreakable, noiseless, and easy to operate, and are intended to fill the need for auditoriums requiring the best in acoustics and comfort for the least money.

The catalog contains five pages of four-color process printing, showing suitable color standards for bringing out the beauty of design and to properly harmonize

the color of the woodwork and coverings. A list of color scheme numbers is given to represent certain combinations of color.

A copy of the catalog will be sent to any school official upon request.

Faber Catalog of Pencils and Crayons. The Eberhard Faber Company, of New York City, has just issued its 1930 catalog, containing 23 pages devoted to the illustration and description of its varied line of pencils, crayons, erasers, penholders, and other school equipment.

An important feature of its line of school equipment is the Mongol thin-lead indelible pencil. These leads are tough, durable, and are guaranteed not to break in normal use. They are excellent for use in sketching and drawing, and are useful for all checking purposes, for correcting examination papers, and for signatures for letters.

Complete information and prices may be obtained from the Faber Company upon request.

York Self-Contained Refrigerating Units. The York Ice Machinery Corporation, of York, Pa., has issued a catalog illustrating and describing its refrigerating equipment for schools and institutions.

The York refrigerating units, which have been developed as a result of broad experience in meeting commercial refrigerating problems and requirements, represent the last word in efficient and economical equipment. The units described and illustrated in the booklet embody all of the features proven sound by years of experience, and incorporate many improvements which the firm's engineers have developed from time to time for fitting them to meet changing conditions and requirements.

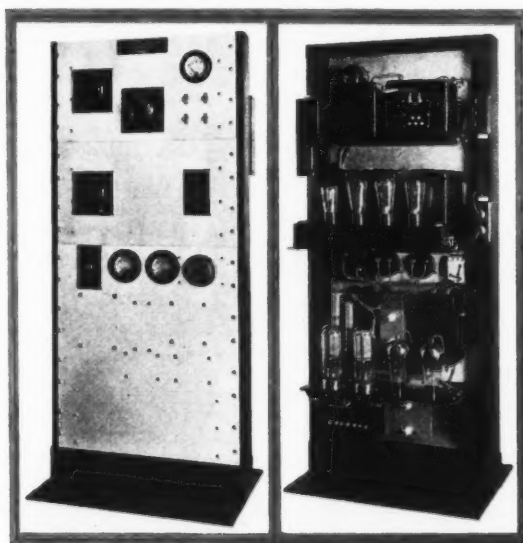
Reed Window Shades. The Reed Mfg. Company, of Temple, Tex., manufacturer of school shades, has issued a new catalog, illustrating and describing the character and use of the Reed adjustable window shades. The Reed Company manufactures an extended line of window shades, of which the new Du-Rol adjustable shade is considered especially noteworthy. This shade is neat in appearance, is held in place by tight tension spring rollers, and may be furnished in folding or single-roller types. Complete information and prices will be sent to any school official upon request.

NEW PRODUCTS

Henderson Sight-Saving Desk. The Theo. Kundtz Company, of Cleveland, Ohio, has issued descriptive circulars illustrating its new Henderson recitation desk, which is of the movable type and suitable for pupils of all ages. The desk seeks to conserve eyesight by encouraging correct reading position. It is quite as well adapted for use in sight-saving classes as it is in regular classes, and may be used in place of tablet-arm chairs as a perfect writing surface. It contains a bookshelf, which eliminates the necessity of placing books on the floor or sacrificing any part of the desk-top surface.

The desk is finished in Kundtz pyroxylin lacquer, in standard golden-oak color, and is equipped with domes of silence. Complete information and prices will be sent to any school official upon request.

Amplifier for School Use. The demand for greater volume of sound, without the sacrifice of tone quality, has been met by a new 5-watt powerizer amplifier, manufactured by the Radio Receptor Company, Inc., 106 Seventh Ave., New York City.



NEW 5-WATT SOUND AMPLIFIER FOR SCHOOLS
Left, front view; right, rear view of unit

This amplifier incorporates two UV-845 power tubes and two UX-866 rectifier tubes. Full-wave rectification is used, and the 50-watt tubes are arranged in push-pull form. The total audio output is estimated at well over 50 watts.

This 50-watt powerizer is arranged in three panels and may employ various combinations, with microphone preamplifier and a radio or phonograph.

The new instrument is of special interest to school authorities who require an instrument of considerable power for large schools.

RECENT BUSINESS CHANGES

Holden Company Takes Over Peabody College Book Covers. Mr. P. H. Alcock, formerly manager for the distribution of the Peabody College book covers, has joined the organization of the Holden Company, the largest manufacturers of machine-made book covers. Requests for Peabody covers, addressed to the Holden Book Cover Company, at Springfield, Mass., will receive prompt attention.

Takes Over Thomas Charles Company. The Milton Bradley Company, of Springfield, Mass., has announced the purchase of the interests of the Thomas Charles Company, which became effective immediately. Mr. Harry W. Nott, formerly identified with the Thomas Charles Company, has become manager of the Chicago branch of the Milton Bradley Company. The personnel of the Thomas Charles Company will continue in their respective capacities in the new firm.

The present change is due to the retirement of Mr. William T. Dix, who has been treasurer and manager of the Thomas Charles Company for a number of years. The new organization will continue to render the same efficient and courteous service which has characterized its predecessor and solicits the confidence and good will accorded to the old organization.

Mr. Latimer Returns to Clow Company. Mr. William F. Latimer, formerly manager of James B. Clow's New York Office during the period from 1905 to 1920, has returned to the Clow Company after a lapse of ten years.

Mr. Latimer was for the past ten years connected with Jaehrig & Peoples, of Newark, N. J., where he acquired a wide knowledge of the plumbing business. He will represent the Clow firm in upper New York state, and will have his headquarters at Albany.

EXHIBITS AT THE N. A. P. S. B. O. CONVENTION

Valuable commercial exhibits of school furniture, equipment, and building materials were shown at the recent convention of the National Association of Public School-Business Officials in New Orleans. The following exhibitors were represented:

American Crayon Company, Sandusky, Ohio—Art materials.

Singer Sewing Machine Company, New York, N. Y.—Sewing Machines.

Steffens-Amberg Company, Newark, N. J.—Building specialties.

E. H. Sheldon Company, Muskegon, Mich.—Laboratory and shop furniture.

Norton Lasier Company, Chicago, Ill.—Door checks.

Underwood Typewriter Company, New York, N. Y.—Typewriters.

Vestal Chemical Company, St. Louis, Mo.—Floor-cleaning machines.

International Time Recording Company, New York, N. Y.—Program clock systems.

Standard Electric Time Company, Springfield, Mass.—Program clocks and fire-alarm signals.

Weber Costello Company, Chicago Heights, Ill.—Maps and supplies.

W. M. Welch Company, Chicago, Ill.—Library furniture and supplies.

Dudley Lock Corporation, Chicago, Ill.—Locks.

American Seating Company, Chicago, Ill.—School furniture.

Continental Chemical Corporation, Watseka, Ill.—Floor-cleaning materials.

Nachary Builders' Corporation—Builders' specialties.

Chicago Apparatus Company, Chicago, Ill.—Library equipment and supplies.

Perfeclite Company, Cleveland, Ohio—School lighting apparatus.

Spencer Turbine Company, Hartford, Conn.—Vacuum cleaners.

D. A. Ebinger Manufacturing Company, Columbus, Ohio—Plumbing apparatus.

Progressive School Equipment Manufacturing Company, Kansas City, Missouri—General school equipment and supplies.

Finnell System, Inc., Elkhart, Ind.—Floor-cleaning apparatus.

Norton Door Closer Company, Chicago, Ill.—Door closers.

Vonnegut Hardware Company, Indianapolis, Ind.—Panic bolts.

Hillyard Chemical Company, St. Joseph, Mo.—Floor-cleaning materials.

The North Electric Manufacturing Company, Galion, Ohio—Automatic telephones.

American Paint Works, New Orleans, La.—Paints and varnishes.

Southern Buildings Materials, Inc.—Flooring and other building specialties.

University Equipment Company, Corry, Pa.—Bleachers.

Hockaday, Inc., Chicago, Ill.—Manufacturers of paints; and *The Herman Nelson Corporation*, Moline, Ill., manufacturers of unit ventilators, were also represented.



On the Firing Line Against Fire

Fires burn more than the property they consume. They burn the dollars of other property owners, because heavy fire losses mean high insurance rates.

Squarely facing the fact that reduction of fire loss was the only effective way to reduce the cost of insurance, Mutual Fire Insurance companies for almost a century have been in the forefront of the fight against fire.

Mutual prevention work has been effective. Basic rates in many fields have been sharply reduced.

The great army of mutual fire policyholders have received annual cash savings ranging from 20% to 50% of their premiums.

An Unparalleled Record

75 leading, legal reserve companies under State supervision constitute the Federation of Mutual Fire Insurance Companies. The oldest Federation company was founded in 1752. Five others are more than 100 years old.

Of the remaining companies—

9 are between 75 and 100 years old
10 are between 50 and 75 years old
30 are between 25 and 50 years old
20 are between 10 and 25 years old

The Federation companies are protecting property to the extent of six billion dollars—have assets in excess of ninety million dollars—have returned to policyholders savings of more than one hundred and thirty millions of dollars.

A mutual policyholder benefits directly by any economy that benefits his company. There are no stockholders in a mutual corporation.

An interesting booklet on the principles and operation of mutual fire insurance will be sent on request. There will be no follow-up of any kind. Address Mutual Fire Insurance, Room 2202-C, 180 No. Michigan Ave., Chicago, Ill.

Mutual Fire Insurance

FEDERATION OF MUTUAL FIRE
INSURANCE COMPANIES



"Our terrazzo and wood floors always have a beautiful lustre now

And we have cut our floor maintenance
costs \$245 per year"

Data from Alvernia High School, Chicago, given
by Sister Superior M. Archangela, in conjunc-
tion with Max Polowy, in Charge of Maintenance.

WE have been using Car-Na-Var floor
treatment for two years on both ter-
razzo and hard maple floors. Our
experience has been that Car-Na-Var saves
labor and material and gives the floors a
beautiful lustre never before obtained.

"We formerly varnished our wood floors
every year or two. Although we maintained
them much as we do now they would be-
come unsightly long before time to re-
varnish. But with Car-Na-Var our floors are
always in excellent condition.

"The terrazzo floors formerly were mopped
every week. This required 10 hours labor
and 32 lbs. of soap each time. Even this
constant mopping did not prevent our ter-
razzo floors from becoming stained and
dirty.

"Comparing costs on both kinds of floors
we have found Car-Na-Var slightly cheaper
than the soap, varnish and mops previously
used. In labor cost, however, Car-
Na-Var has shown a yearly saving
of \$245.00.



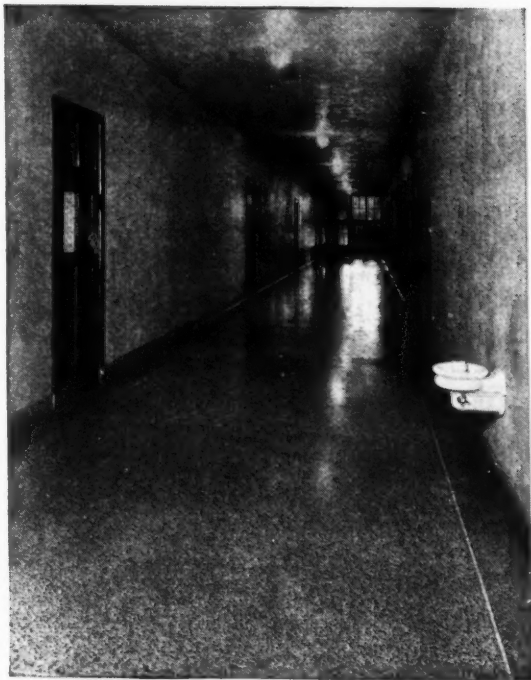
CAR-NA-VAR
TRADE MARK REG. U.S. PAT. OFF.
THE PERFECT FLOOR TREATMENT

On floors of Rubber, use Rubber-Var—
works like Car-Na-Var.

AFTER all, what
interests YOU
most is what Car-
Na-Var will do for
YOUR floors. The
best way to answer
that is by actual use
—hence our free test
offer. Mail coupon
for full details—no
obligation.

**Make this
FREE Test!**

Name.....
Address.....
.....
Our Floors Are.....



Car-Na-Var, regularly used at Alvernia High
School, Chicago, on 15,000 sq. ft. of terrazzo
floor and 28,000 sq. ft. of hard maple floor,
gives the floors a lustre never before obtained.
Peter Brust, Architect, Milwaukee. W. E.
O'Neil Construction Co., Contractor, Chicago.

"Here is what our records show since using
Car-Na-Var: On hard maple floors total
cost of material and labor, 2¼c per sq. ft.
per year. On terrazzo, 1⅓c per sq. ft. per
year."

Car-Na-Var, a scientific combination of var-
nish and floor wax for treating wood, linole-
um, mastic, cement, cork, terrazzo, etc., is
obtainable in "Natural" and the following
colors: Dark Oak, Light Oak, Mahogany,
Walnut, Olive Green, Bright Green, Mission,
Maroon and Cherry.

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in Principal Cities

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Without obligation send me full details about
Car-Na-Var and your free test offer.

FINNELL *is again* FIRST!



First Floor Scrubber
First Electric Floor Machine
First Water Absorber
First Vacuum Mopper

Now the First Successful Combination Scrubber-Water Absorber

All in one! The problem which for years has baffled floor machine designers has been conquered—and logically enough by the organization which built the first practical floor scrubbing device and which has ever since been foremost in this field.

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The FINNELL Combination Scrubber, Polisher and Mopper is destined to supplant the

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If you would like to see it in action on your floors, write at once. Demonstrations will be arranged as soon as possible in the order requests are received. We shall be glad to show you this revolutionary machine and prove what it can do.

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